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ABSTRACT

This handbook contains the evaluation strategy and the instructional strategy components of the Evaluating Students' Learning and Communication Processes program. The program described in the handbook is based on the principle that secondary school students' achievement is related to the extent to which students have independent control over learning and communication processes. After an introductory section, the handbook introduces teachers to the six learning and communication processes (exploring, narrating, imagining, empathizing, abstracting, and monitoring) that are central to the diagnostic evaluation program, and includes the tools to record, evaluate, and keep track of students' progress. The next part of the handbook helps teachers implement the program, select appropriate instructional activities, collaborate with others, and design diagnostic teaching units. Contains 27 references. (RS)

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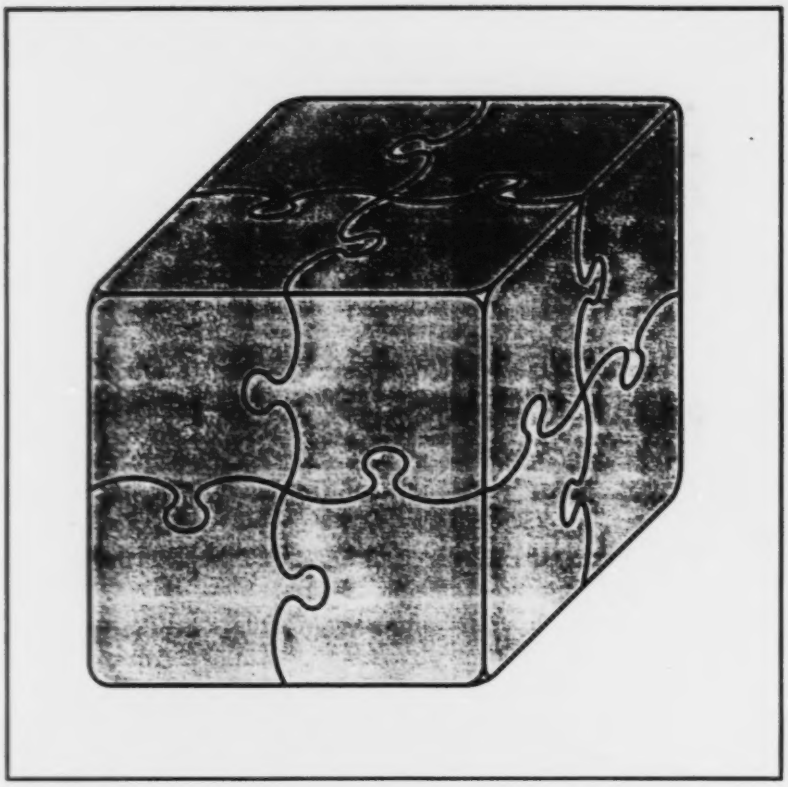
Evaluating Students' Learning and Communication Processes



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Handbook 1
Integrating Diagnostic Evaluation and Instruction

Students First!
Student Evaluation

Alberta Education

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Evaluating Students' Learning and Communication Processes

Integrating Diagnostic Evaluation and Instruction

This document was written primarily for:

Students	
Teachers	✓
Administrators	
Parents	
General Public	
Others (Specify)	

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CS

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Introduction

How will my students and I benefit from using the program?

The teachers who helped us develop *Evaluating Students' Learning and Communication Processes* believe that you will benefit from using the program in several ways.

Meet individual needs

It will help you meet your students' individual needs.

Evaluate learning and communication processes in regular classroom activities

It will help you and your students evaluate their progress in six learning and communication processes important to their achievement in your class. You will be able to examine their learning and communication processes in many different kinds of situations in regular classroom activities. You will also be able to look at these processes in portfolios of their work.

Partnership with students in evaluation and goal setting to help them become more independent learners and communicators

You and your students will become partners in the evaluation of their learning and communication processes. You will be able to identify strengths in their work that you may not have noticed before. This will create a constructive basis for setting goals together to help them become more independent in their use of the processes. Your students will assume more responsibility for their learning and achievement in your class.

Collaboration with other teachers to promote independence in students' learning and communication processes

Because the program can be applied across the curriculum, you will be able to share your evaluation of your students' learning and communication processes with their teachers in other subject areas. This will enable you to work together to help students grow in their ability to use the processes effectively in all their classes. You will also be able to help them make connections among the things they are learning in different classes. If you are trying to integrate subject areas, this program will give you a common focus on students' learning and language development that will help you do this.

Communication and collaboration with parents to promote independence in students' learning and communication processes

The program will help you explain students' learning and communication processes in terms that parents can understand easily. This will enable parents to recognize strengths and encourage improvement in the student's use of the six processes in activities outside of school.

How is this program related to other Alberta Education programs?

Independent control over learning and communication processes will improve student achievement

Evaluating Students' Learning and Communication Processes is a diagnostic evaluation program designed and developed by Alberta Education with the assistance of junior and senior high school teachers and their students. The program is based on the principle that students' achievement is directly related to the extent to which they have conscious, independent control over essential learning and communication processes. If students have the opportunity to gain independent control over these processes, they will be able to use language effectively to learn, to demonstrate their understanding of new ideas, and to examine the relevance of these ideas to their own lives.

A systematic approach to describing students' progress in the processes and planning instruction to help them become more independent users of the processes

This program provides secondary school teachers and students with a systematic means of observing and interpreting the students' development in six processes important to their learning and communication skills in English language arts, social studies, and science classes. It also provides teachers and students with a framework for setting goals and selecting instructional activities that will help students use the six processes more effectively and independently. The program has been designed to help you include diagnostic evaluation of students' learning and communication processes as part of your regular classroom activities.

A voluntary diagnostic evaluation program to help teachers accomplish their goals for studetns' learning

The use of this diagnostic evaluation program is voluntary. *Evaluating Students' Learning and Communication Processes* has been designed to support the work you are already doing to implement Alberta Education's programs of study and accomplish its goals for students' learning. You will find that the expectations we describe for students' learning and communication processes are fundamental to their learning and language development in your subject area. (See Appendix 1 for further explanation.)

A collaborative formative, and descriptive approach to evaluation and instruction to help students become more independent users of learning and communication processes

Evaluating Students' Learning and Communication Processes emphasizes a developmental approach to learning and instruction. Your evaluation of your students' learning and communication processes is intended to be collaborative, descriptive, and formative, focusing on how well individual students can use the processes independently in a variety of learning situations in your class and what you can do together to help them become more independent in their use of the processes.

You will not have to give students grades for their learning and communication processes. As they develop greater independent control over these processes, you can expect to see a gradual improvement in their achievement on assignments, projects, and tests.

Supports continuity in students' learning

Evaluating Students' Learning and Communication Processes supports continuity in students' learning. The use of the program will help students make connections between their experiences in school and those in the community. It will also help them make connections across subject areas in their school work. The program will help teachers identify each student's present level of independence in the six learning and communication processes, and it will promote collaboration among teachers, students, and parents to help students become more independent in their use of the processes.

What is the theoretical basis of the program?

Current thinking about human learning and language development

Evaluating Students' Learning and Communication Processes has been based upon important ideas about human learning and language development, applicable to students' learning across the curriculum and also to lifelong learning in the world of work and leisure. These ideas, and their implications for diagnostic evaluation of students' learning and communication processes, are summarized in the following paragraphs.

Learning is an elaboration of mental structures demonstrated in accurate and effective use of language

Learning is an elaboration of mental structures. (These are sometimes described as "constructs," "prior knowledge," or "schemata.") These structures encompass attitudes, values, and feelings as well as concepts and skills. Students demonstrate an elaboration of mental structures when they can use the language of a subject area accurately and effectively to discuss new ideas and apply them appropriately to real-life situations.

Learners construct the meaning of their experiences and develop greater competency with language by using language to explore new ideas

The learner is an active constructor of meaning. There is an important relationship between language for learning and language for communication with others. Because individual learners differ in their experiences, knowledge, values, and attitudes, their initial constructions of meaning may also be different. In order to refine and extend their understanding of new ideas and to learn how to use the language of each subject area with ease and sophistication, students need to have opportunities to talk and write in an exploratory way about what they are learning in school. Therefore, evaluation should focus on their developing competency with language as they participate in learning activities designed to promote development from exploratory language to more public uses of language.

Narrative language plays an important role in learning and language development in all subject areas

In all subject areas, narrative language appears to be a basic cognitive resource for organizing ideas and expressing their significance. Because narrative language involves both intellectual and affective responses to new ideas, it helps learners reflect upon and reshape what they already know and value in response to new ideas. Narrative language is a bridge between the exploration of new ideas and language and the development of more refined thought and language at higher levels of abstraction (i.e., generalizatiing, speculating, and theorizing). Many theorists believe that narrative language has been a significant stage in the evolution of established forms of thought and writing across all disciplines. Evaluation should be sensitive to the important role that narrative language plays in the learning processes of all human beings.

Learning changes what we know and also how we feel about it

Learning involves both affective and intellectual intellectual responses to new ideas. Feelings and attitudes influence students' responses to new experiences and are, in turn, influenced by new experiences. They need to be expressed and developed in order for growth to occur. Evaluation should take account of students' feelings and attitudes, and how they interact with and influence intellectual responses to new ideas.

Learning happens best when we can use all our language resources to communicate in a variety of realistic, interesting, and purposeful situations

Learning takes place in a social context where all the language strands (reading, writing, speaking, listening, and viewing) are brought into play to serve a variety of purposes. These various aspects of communication support one another in learning. If students have opportunities to use language for a variety of realistic purposes, they will learn how to use language effectively to learn and to express their ideas with increasing sophistication for different kinds of audiences and purposes. Evaluation of students' learning and language development should take place within the context of learning activities where different forms of communication are integrated and being used in interesting, purposeful ways related to the subject area.

Evaluation needs to be ongoing so that we can see what students can do independently and encourage them to try something more challenging

Evaluation should occur within the context of instruction. Learning occurs most readily within the zone of proximal development as defined by Vygotsky. The goal is to help students develop conscious, independent control over their learning and language use. To do this we need to identify what they can do independently and then encourage them to try something more challenging, giving them the assistance they need until they can meet the challenge independently. In order to find out what they do independently and choose what they should try next, we need to evaluate their progress while they are involved in learning activities, not just at the end of the learning process.

In order to become lifelong independent learners, students need to be able to evaluate their progress and set goals for improvement

Because students are active participants in the learning process, they must also be active participants in the evaluation process. In order to become independent learners and language users in school and outside of school, students need to be able to assess what they can do independently and identify areas where they need to develop greater independence and control over their learning and communication processes. Therefore, students must be involved as partners in evaluating their progress in these processes and in setting goals for improvement.

What are the main parts of this program?

The Evaluation Strategy

The Instructional Strategy

The Diagnostic Teaching Units

Evaluating Students' Learning and Communication Processes has three components: the evaluation strategy, the instructional strategy, and the diagnostic teaching units. The evaluation strategy and the instructional strategy are contained in this handbook. The diagnostic teaching units are found in separate handbooks. The purpose and contents of each part of the program are described below.

The Evaluation Strategy

An introduction to the six processes

Tools to record, evaluate, and keep track of students' progress towards independent use of the processes

This part of Handbook 1 introduces you to the six learning and communication processes that are central to this diagnostic evaluation program. It also includes the tools that you and your students can use to

- identify key indicators of the six processes
- record information about the students' use of the six processes
- analyse this information and construct individual profiles to show how independently they can use the processes
- make decisions about appropriate instructional activities for groups and individuals to help students develop greater independence where they need to do so and challenge them where they are already demonstrating independence
- keep track of their growth in independent use of the processes over a school year

These tools were designed with the assistance of teachers who helped us develop this program.

The Instructional Strategy

How to implement the program, select appropriate instructional activities for students, collaborate with others, and design your own diagnostic teaching units

This part of Handbook 1 helps you implement the program in your classroom. In the instructional stategy you will find

- advice on how to implement the program gradually in manageable stages
- suggestions for introducing students to the six processes, involving them in self and peer evaluation of their learning and communication processes, and collaborating with them to set goals for further growth in their use of the processes

- instructional activities that can be used to help students develop more control over the six learning and communication processes

- examples of collaboration among teachers across the curriculum to evaluate students' use of the six processes and plan follow-up instructional activities for them

- suggestions for reporting students' progress in the six processes to parents and getting their assistance to help students meet their goals for improvement

- guidelines for developing your own diagnostic teaching units

Much of what you will find in the instructional strategy is based upon the experience of teachers who have successfully implemented the program in their classrooms.

The Diagnostic Teaching Units

Five diagnostic teaching units have been designed to help teachers implement *Evaluating Students' Learning and Communication Processes* in their classrooms. These are found in three separate handbooks called

Diagnostic Teaching Unit: Language Arts

Diagnostic Teaching Units: Social Studies

Diagnostic Teaching Units: Science

Designed by teachers to show you how to include diagnostic evaluation of learning and communication process in your program

These units have been created by teachers and tested in their classrooms. They are based on the programs of study for Alberta secondary schools. The unit and lesson plans for each diagnostic teaching unit show you how to incorporate diagnostic evaluation of students' learning and communication processes as part of your regular instructional program.

Examples showing you how to analyse and evaluate learning and communication processes in student work

The unit and lesson plans are followed by an analysis of student work produced when the units were tried out in classrooms. This will help you learn how to identify and evaluate students' use of the six learning and communication processes in different kinds of student work. It will also help you select appropriate instructional activities to help students develop more independent control in their use of these processes where this is required. The five diagnostic teaching units are

Grade 7 Language Arts: What's So Funny? (The Lighter Side of Life)

Grade 7 Social Studies: Cultural Transition in Japan

Grade 7 Science: Structures and Design

Grade 8 Social Studies: The Physical and Human Geography of the Amazon Basin

Grade 9 Social Studies: Soviet Leadership and Economic Growth

Grade 10 Science: Acids and Bases

A model for designing your own diagnostic teaching units

In addition to helping you implement the program in your classroom, these units also provide a model to assist you in planning your own diagnostic teaching units. In Appendix 2 of this handbook, you will find unit planning and lesson planning sheets, which you may photocopy to use when planning your own diagnostic teaching units. In a later section of this handbook, you will find further information to help you design your own diagnostic teaching units.

The Evaluation Strategy

The Six Learning and Communication Processes

The following descriptions will help you become familiar with the six learning and communication processes that are central to *Evaluating Students' Learning and Communication Processes.* The six processes are:

- Exploring
- Narrating
- Imagining
- Empathizing
- Abstracting
- Monitoring

As you read the descriptions of the six processes, you will find that you are using these very processes in order to develop your understanding of them.

Barry Anderson, a student in a junior high school class that piloted this program, drew cartoons to illustrate each process. His classmates helped to write the captions. The students developed their own acronym for the program: "DO IT" stands for "diagnostic observations" and "instructional techniques." They designed their own logo for the program, too, which you will see later in this handbook.

Exploring

Becoming aware of prior knowledge, feelings, and values

Framing questions; Searching for additional information

You are reading this handbook because you are interested in students and in evaluating student performance. Because you already know a great deal about students and about evaluation, you are already asking yourself questions about this new program. Will the program be similar to what I do now when I evaluate students? Will it be useful? Will it assist me in helping students to learn? As

Connecting new with prior knowledge, feelings, and values

Taking calculated risks

you read this handbook, you are continually connecting the information and experience you already possess with new information contained in the handbook and new experience that you create for yourself as you *think* about this information and determine how you *feel* about it.

This is the process of **Exploring**. The process of mental exploration is very much like geographical exploration. As you read this handbook, or, in fact, as you deal with any new information, you are much like Columbus or Magellan or Neil Armstrong. You are taking a calculated risk. You are not risking death, as were the early explorers and the Apollo astronauts, but you *are* risking difficulty, dissonance, and failure. Depending upon the type of information that you are assimilating, and the strength of your existing concepts and beliefs, you may be forced to risk even your most cherished values by re-examining them in the light of new information.

So it is for our students. When we present our students with new information, new experiences, we are triggering in them the process of exploring. To be considered strong explorers, our students will exhibit certain key behaviors. They will show us that they are aware of the knowledge and feelings that they already possess about the topics we have introduced. They will demonstrate the skills and attitudes that will allow them to ask pertinent questions and to search for new information. They will make connections between what they already know and what they have just learned. They will act on intuition and partial information, thereby risking failure at first in order to understand.

Exploring

Narrating

Using time and space to organize remembered experience and information

Relating experience within and across subjects to clarify concepts

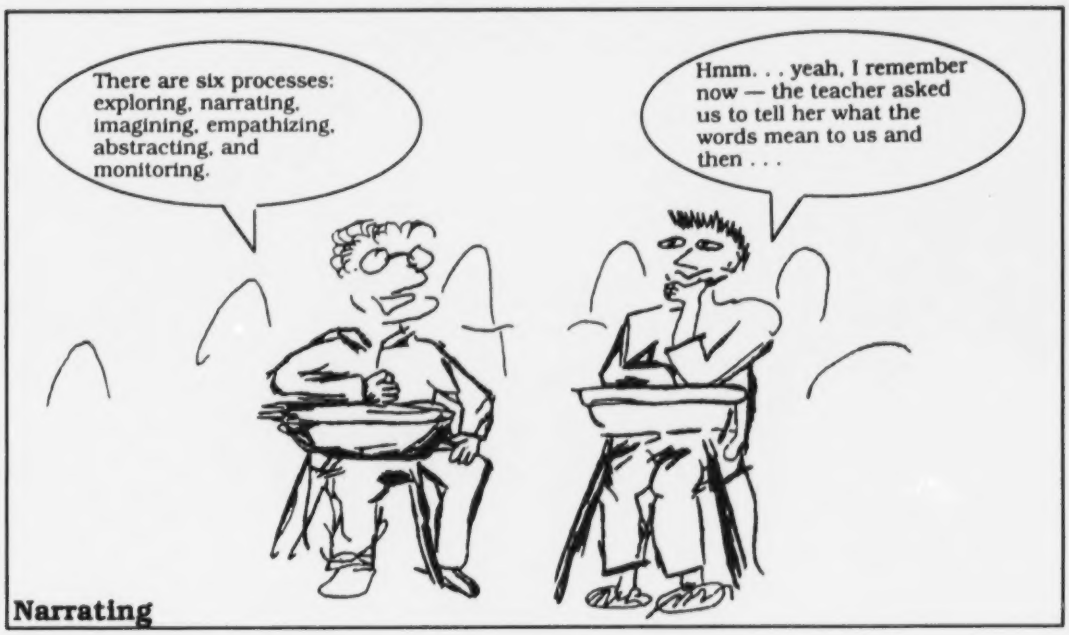
Using anecdote in sharing experience

Valuing and enjoying shared experience, real and vicarious

At some point in your reading of this handbook, if the *Evaluating Students' Learning and Communication Processes* has become at all interesting to you, you will want to discuss it with a friend or colleague. You are likely to recount your experience with this new information to your listener using a narrative framework. You will give your experience a beginning in time. Most probably, you will develop your thoughts chronologically, and you will build to a climax that reflects your present state of excitement or confusion or, perhaps, anxiety. Whatever the case, you will find that you have to *share* your new experience with someone in order to make it truly meaningful. Even as you read this handbook, you will come across certain ideas that trigger your memory of experiences you have had with your students or with your own learning, and these experiences will be remembered as narrative incidents that can be turned into anecdotes in your discussions with colleagues.

This is the process of **Narrating**. It is central to human learning and communication. Narration allows us to organize our experience and to personalize it by imbuing it with feeling and meaning. The great classics that convey our culture, our fundamental beliefs, our universal truths, are almost always given a narrative structure. Narrative underlies most of the writing that chronicles human history and much of the writing that records scientific knowledge. Storytelling, which is the delight of the young and which conveys the wisdom of the aged, is pivotal to much human interaction because it allows us to connect cognition with affect — what we know with what we feel.

As our students learn, they will want to share their discoveries with their classmates. To be considered strong narrators, our students will use time and space, incidents occurring within a setting, to coherently organize remembered experience and information. They will use anecdote to connect personal experiences, real or vicarious, to the topic at hand. They will relate experience from different subjects, perhaps recalling previous study of *haiku* in language arts, and applying it meaningfully to their present study of Japanese culture in social studies. And, perhaps most important, strong narrators will value and enjoy sharing their own and others' experience, and they will demonstrate this with excitement, with laughter, and even with tears.


There are six processes: exploring, narrating, imagining, empathizing, abstracting, and monitoring.
Hmm. . . yeah, I remember now — the teacher asked us to tell her what the words mean to us and then . . .
Narrating

Imagining

Creating images and conveying associated feelings

Transforming images

Imagining self in different situations, places, and times

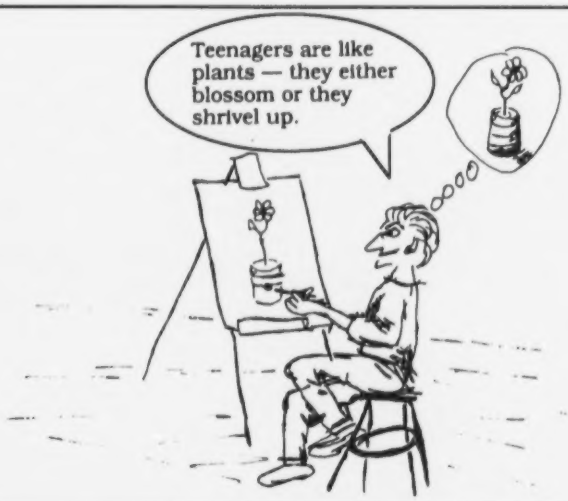
Using figurative language

As you read this handbook, as you explore new ideas and remember previous experience, your imagination is unlocked. Your mind's eye and your mind's ear are brought into play, and you create mental images as you become engaged in communicating with the written word. For example, when you saw "Neil Armstrong" and "Apollo astronauts" under Exploring above, you may very well have used your imagination, "seen" the Eagle landing, and "heard" Armstrong saying "One small step for man, one giant leap for mankind." As you continue to read, you may transform images that you have remembered. You may, for example, imagine what your last class would have been like if you had integrated the *Evaluating Students' Learning and Communication Processes* into your course, thereby comparing what *was* with what *could have been*. You may find that you are imagining yourself using the program and its evaluation and instructional strategies in different situations and contexts as you read.

This is the process of **Imagining**. The process of creating and transforming mental images and of communicating what has been imagined is critical to learning. Albert Einstein considered the imagination to be "more important than knowledge." Imagination allows the learner to transcend the here-and-now and to transform the ordinary into the profound. An image that is vivid, detailed, and associated with remembered emotion is going to remain in the memory forever. Also, such an image will be easy to communicate because it is precise and meaningful.

One tool of the imagination that is very useful to us in creating meaning is *metaphor*. The person who can find imaginative and meaningful comparisons between seemingly disparate things is the person who will be able to communicate with power, originality, and vision.

Our students will be demonstrating that they are strong imaginers when they create and transform new or remembered images, when they imagine themselves in different situations, places, and times, and when they use metaphor and other figures of speech effectively.



Imagining

Empathizing

Shifting attention away from self while communicating

Reserving judgment and disbelief

Selecting language that takes audience into account

Taking on the role of another

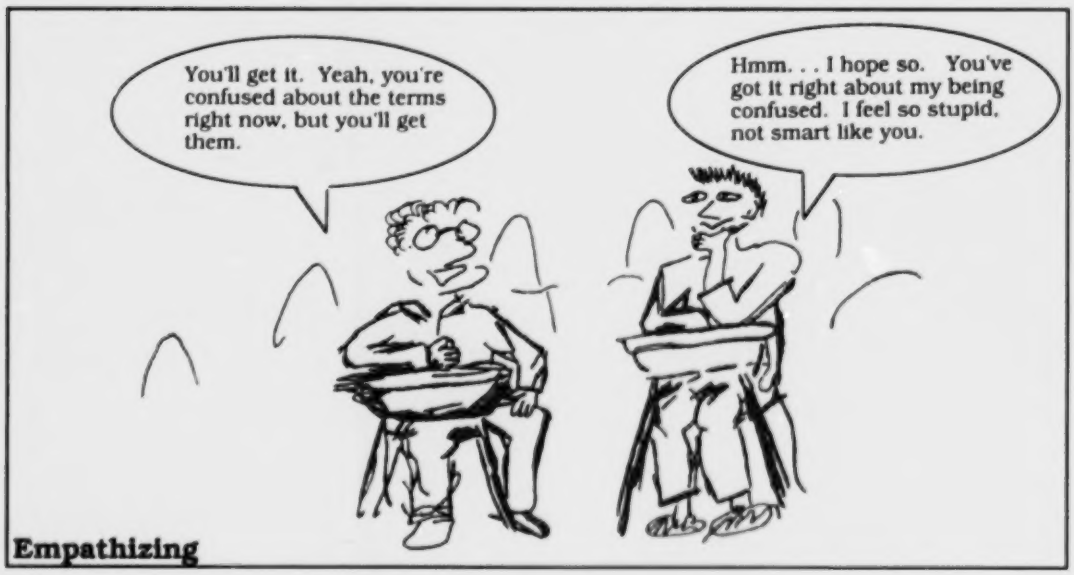
As a reader of this monograph, and as a reader of written material in general, you tend to shift your consciousness away from yourself and your day-to-day concerns and towards the ideas, experiences, and images that are coming at you from the page. In order to understand what is being presented, you are likely to suspend judgment initially so that the new information can take on shape and substance. You will become aware that there is a human being at the other end of the communication — the writer — and that this writer has his or her own attitudes, values, beliefs, and experiences that can be detected in the written word.

As a user of language, when you are writing or when you are speaking to a group of people, you will select words and phrases that you hope will appeal to your audience. You will consider your readers or your listeners, and you will place yourself in their position, take on their role in order to think as they think and feel as they feel.

This is the process of **Empathizing**, of understanding the perspectives of others. Our students benefit when their learning activities encourage them to shift their attention away from themselves and take on different roles. For example, students who are able to envision themselves in the role of author, writing for an interested audience, will be more likely to choose an effective style and form and to use the conventions of written language appropriately than will students who are unwilling or unable to take on that role. Similarly, students who can take on the role of scientist, investigating questions of interest to them, will be more likely to use appropriate procedures in the lab and to use the language of a scientist with accuracy and precision when reporting the results of their investigations.

To be considered strong empathizes, our students will shift their attention away from

themselves while communicating. They will suspend judgment until they fully understand what they are reading or hearing. They will select language that takes their audience into account, and they will take on the role of the other person while communicating.


You'll get it. Yeah, you're confused about the terms right now, but you'll get them.
Hmm. . . I hope so. You've got it right about my being confused. I feel so stupid, not smart like you.

Empathizing

Abstracting

Supporting generalizations

Applying generalizations

Evaluating the soundness and significance of generalizations

Using symbol

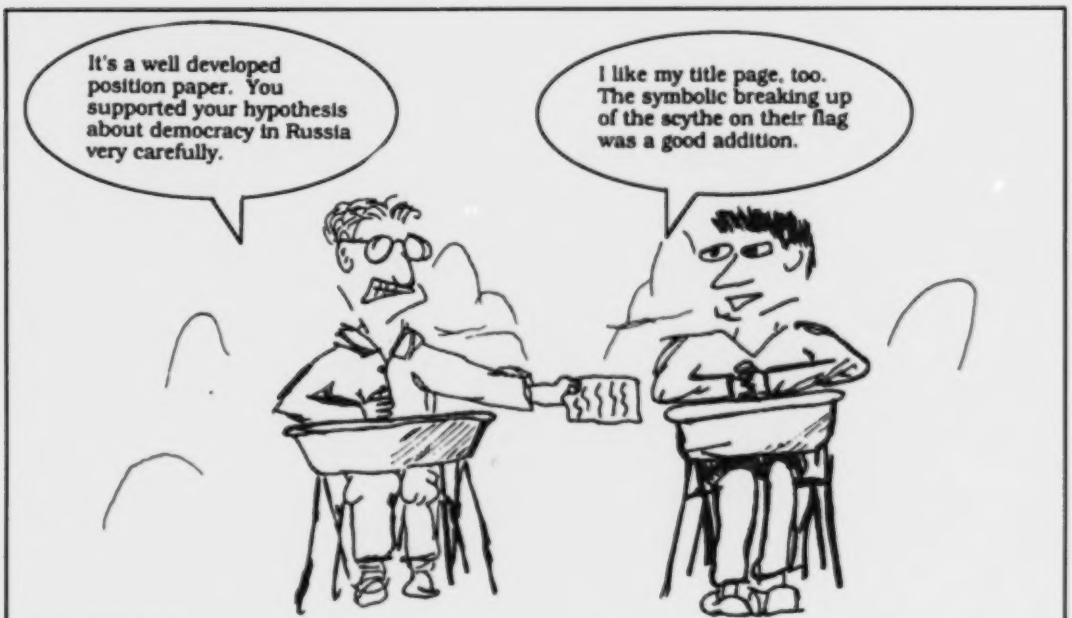
Your ability to classify, to bring similar objects, events, or ideas together into categories, and to generalize is also being tapped as you read this handbook. By now you may have determined that the processes that have been discussed — Exploring, Narrating, Imagining, Empathizing, and now, Abstracting — are essential to human learning and communication.

As you continue to read, you will apply the generalizations that you have created while reading this section to make sense of the next sections on the use of the evaluation strategy. We hope that you will conclude that you can discover how independently your students can use these processes and that you can select appropriate instruction for individual students to help them improve where they are not yet able to use the processes independently. When you have finished reading and you have had an

opportunity to discuss the ideas presented here with colleagues, you will probably evaluate the significance and worth of this new program to you as an educator.

This is the process of **Abstracting**. The ability to create, support, apply, and evaluate generalizations is fundamental to human reasoning. It is the way that we make sense of our perception of the objects, ideas, and events that surround us. When we create categories that we can use to classify things, the flux of our perception and experience becomes meaningful and *accessible* to us. And the greater the number of abstract elements upon which we are able to base our classifications, the more useful the process of abstracting is to us. The carpenter, for example, chooses pressure-treated fir for the posts, beams, and joists of the deck he is building because of the strength of this material and its ability to resist decay, but he chooses cedar or redwood for the floor of the deck because of its warm color and the beauty of its grain. By applying his generalizations in more than one way, the carpenter becomes both engineer and artist when building the deck.

So it is for our students. As they gain the power to classify and generalize according to a variety of abstract elements, their ability as learners, as thinkers, and as communicators grows. To be considered strong abstracters, our students will not only make generalizations, they will provide relevant support for their generalizations. They will show that they can apply generalizations in order to make plausible predictions and explanations. They will evaluate the soundness and significance of their own generalizations and those of others. And they will use symbol, memory's aid and reason's tool, to provide concrete representation of abstract thought.


It's a well developed position paper. You supported your hypothesis about democracy in Russia very carefully.
I like my title page, too. The symbolic breaking up of the scythe on their flag was a good addition.

Abstracting

Monitoring

Setting goals for learning and communication

Planning strategies for learning and communication

Adjusting goals and strategies for learning and communication

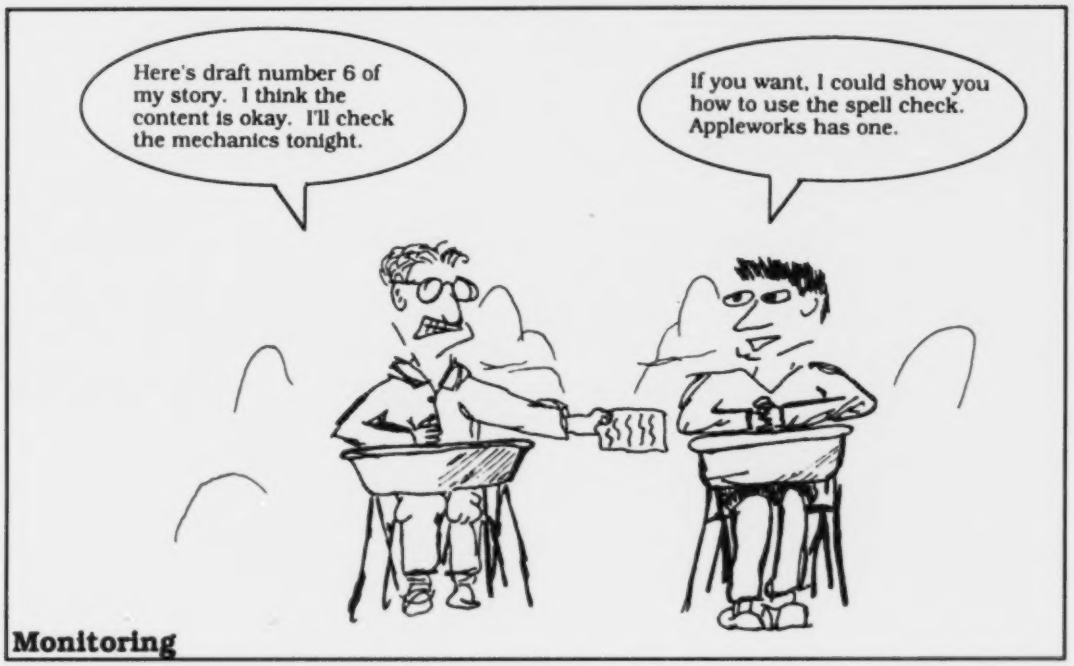
Facilitating learning and communication, and persevering

As you read this handbook, you are continually checking your understanding of its contents. If a particular sentence has not made sense to you, you have probably reread it to come to grips with its meaning. You may have reread entire paragraphs in light of some thought that has occurred to you as you read further. And when you first picked up this handbook, you had a purpose for reading and a strategy that suited that purpose. You may, for example, have decided first to have a quick look at the handbook to see if it would interest you. You flipped through the pages, noted the headings, and skimmed some of the contents, perhaps spending some time with the descriptive scales and observation/profile sheets in the next section because they looked like something you could use. Or you may have decided that this was important "stuff" and that you had better find out about it. You may have made yourself a refreshing drink, sat down, and slogged through the handbook, making copious marginal notes.

You didn't quit reading when something distracted you. Rather, you persevered, and you are hoping to be rewarded for your effort by receiving useful and usable information.

This is the process of **Monitoring**. It is the companion process of the other five communication processes. As Sancho Panza is to Don Quixote or Jiminy Cricket is to Pinocchio, the process of monitoring is (or should be) in constant attendance to the other processes. As we communicate with others, in person or through the printed word, we continually adjust our interpretations and language as the situation unfolds. We correct our "mistakes" as explorers, narrators, imaginers, empathizers, and abstractors, and celebrate our correct predictions and understandings. As speakers, for example, we readily notice the frowns or puzzled expressions on the faces of our listeners. We realize we are not being understood, and we take steps to correct this.

Our students, too, must become strong monitors if they are to be independent learners and good communicators. One of the most fundamental goals of all teaching is to move our students from being dependent upon *external* monitoring ("*You* should do this") to being driven by *internal* monitoring ("*I* should do that"). To be considered strong monitors, our students will show that they can set goals and establish purposes for learning and communication and that they can plan corresponding strategies. They will demonstrate that they can adjust their goals and strategies to fit changing learning and communication contexts, and they will persevere, in spite of difficulties, to arrive at understanding.


Here's draft number 6 of my story. I think the content is okay. I'll check the mechanics tonight.
If you want, I could show you how to use the spell check. Appleworks has one.

Monitoring

Further Thoughts from Leaders in the Field of Learning

Exploring

(We) may suppose that the important products and projects that have affected human society are likely to have been given their first draft in talk between the originator and someone who was sufficiently 'in the picture' to hear and consider utterances not yet ready for a wider hearing. . . (James Britton)

Narrating

(We) dream in narrative, daydream in narrative, remember, anticipate, hope, despair, believe, doubt, plan, revise, criticize, construct, gossip, learn, hate, and love by narrative. In order really to live, we make up stories about ourselves and others, about the personal as well as the social past and future. (Barbara Hardy)

(If) you aspire to becoming an invertebrate paleontologist you must be someone given to storytelling. What is geology but a vast story which geologists have been composing and revising throughout the existence of their subject. . . . There are stories wherever we turn. . . . every chemical reaction is a story compressed into the straightjacket of an equation. . . (Harold Rosen)

When dealing with data one is inclined initially to arrange them in the shape of a story in accordance with a time framework. Most first drafts take this form. Once the facts have been arranged in this manner, it becomes easier to pull apart and reorganize the data in terms of more general, explanatory themes or analytical concepts. Second and even third drafts accordingly articulate much more sophisticated explanations than do first drafts. What starts as a chronicle (in the first draft) gets reformulated and reconceptualized (as it is redrafted) in terms of increasingly complex concepts as the writer seeks to articulate meanings discovered in the data. (Barry Beyer)

Imagining

Journals of science do not give space to rambles through metaphor, to the processes by which we get ideas worth testing. . . yet a great deal of the time of scientists is spent in just such ramblings. Let me now say what Niels Bohr told me. The idea of complementarity in quantum theory, he said, came to him as he thought of the impossibility of considering his son simultaneously in the light of love and in the light of justice, the son just having voluntarily confessed that he had stolen a pipe from a local shop. His brooding set him to thinking about the faces in the trick figure-ground pictures: you can see only one at a time. And then the impossibility of thinking simultaneously about the position and the velocity of a particle occurred to him. That tale, we are told, belongs in the history of science, not in science itself .
(Jerome Bruner)

Empathizing

Among scientists, there is no substitute for the thrill of discovery—the ultimate satisfaction of the craving for the novel. But discoveries are rare. It is the aesthetic dimension of everyday science that keeps scientists going. There is an empathy, a sense of oneness, that develops between the researcher and the object of study. The best example is Barbara McClintock's description of feeling that she's getting down into the cells she is looking at under the microscope.(Maura Flannery)

Abstracting: Integrating the Processes

Between the practice of hackneyed exercises on the one hand and the heuristic visions of the lonely discoverer on the other, lies the major domain of established mathematics on which the mathematician consciously dwells by losing himself in the contemplation of its greatness. A true understanding of science and mathematics includes the capacity for a contemplative experience of them, and the teaching of these sciences must aim at imparting this capacity to the pupil. The task of inducing an intelligent contemplation of music and dramatic art aims likewise at enabling a person to surrender himself to works of art. This is neither to observe nor to handle them, but to live in them. (Michael Polanyi)

One of the great problems in the teaching of literature, I think, derives from the notion that the teacher's responsibility is to teach "the" correct reading of the work. . . If we look at any of the great works we see what great diversities of interpretation there have been. What the teacher needs to feel responsible for is helping students to handle their responses to the text better. . . It's done through building on what they have made, through leading them to become more critical themselves of what they've done by contrast with what other students have made of the text. The teacher can certainly intervene and ask, "Well, what in the text led you to think this?" and "What do you make of this part?". . . From such discussions centering on the students' own recreation of the work will emerge the learnings that are the teachers' goals—the ability to analyze, categorize, and evaluate the literary background and critical ability. (Louise Rosenblatt)

An increasing ability to handle the possibilities of experience, to deal in terms of 'what might be', accompanies and maintains the ferment—the ferment of self-questioning, doubting, experiment and counter-experiment . . . (The) task, the preoccupation, is reflected in a great deal of adolescent behaviour, and in particular their talk, their writing and their reading. In the participant role they will discuss, argue, confess, explore, theorize: in the spectator role they are likely to intensify their improvisations upon 'the world as I have known it', whether in their daydreaming, or in the reading and writing of poetry and fiction. . . (James Britton)

Integrating the Learning and Communication Processes

Exploring, Narrating, Imagining, Empathizing, Abstracting, and Monitoring operate together

The six learning and communication processes are presented in Figure 1 as a model that will help to explain how they interact. (Appendix 1 shows the relationships between this model and other models from Alberta Education Teacher Resource Manuals and Curriculum Guides that may be more familiar to you.) Although the model is not strictly linear (that is, the learner or communicator does not "finish" with **Exploring** and move on to **Narrating**, "finish" with **Narrating** and move on to **Imagining**, and so on), learner development *generally* does follow the path indicated by the larger arrowheads in the model.

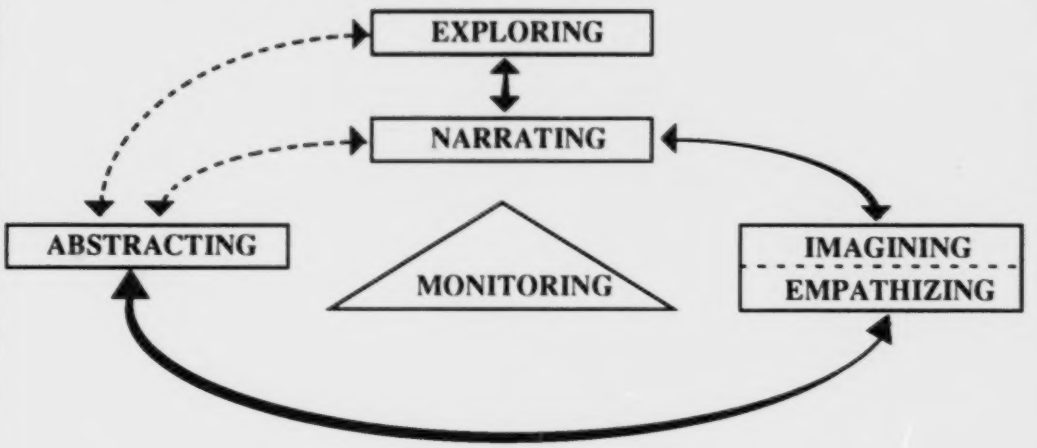


Figure 1
Processes Involved in Learning and Communicating

Development is also recursive, however. Learners make use of all processes as required as they progress from **Exploring** through to **Abstracting**. This back-and-forth movement between processes is especially important in the interplay between **Imagining** and **Empathizing** on one hand and **Abstracting** on the other. This interaction of processes allows the learner to integrate cognition with affect in his or her learning and

communication.
While the six processes do interact, they can be considered separately for purposes of diagnostic evaluation, as you will see in the next section of this handbook. For this reason, most of the processes have been placed in separate boxes in the model. **Imagining** and **Empathizing** share a box, however, and are separated by a dotted line to suggest that these two processes in particular call upon very similar mental actions, such as the ability to decentre. **Monitoring**, as the companion process, is at the centre of the model and is placed in a triangle with points aimed at the other processes. The dotted arrow between **Narrating** and **Abstracting** suggests that on very rare occasions, depending upon the amount and strength of prior knowledge and experience, learners can develop abstract understanding quickly. Most often, however, learners require time to engage all processes if they are to be able truly to understand and to communicate their experience. The dotted arrow between **Abstracting** and **Exploring** suggests that the circle never ends, that interplay among the six processes is continual. New abstractions give rise to new questions and to further exploration.

Ideally, all six processes are engaged together when communication is at its best and most powerful. The most compelling communicators such as David Suzuki, Jacob Bronowski, and Carl Sagan use language powerfully to draw us into the process of discovery, engaging us in the excitement of exploration and narrating events vividly to capture our imaginations. They convey a definite empathy with us and a conviction that we are quite capable of understanding the complex, abstract ideas they are presenting to us. And even during one-way communication on the television or radio, we get the feeling that they are monitoring their communication with us, anticipating our reactions and adapting their strategies so that we will understand.

The Tools of the Evaluation Strategy

This section of the handbook contains a set of tools that will help you and your students to

- record information about their use of the six processes
- analyse this information and construct individual profiles to show how independently they can use the processes
- make decisions about appropriate instructional activities for groups and individuals to help them improve where they are not yet demonstrating independence in their use of the processes
- keep track of their growth toward independent use of the processes over a school year

The set of tools includes:

- Descriptive Scales
- Observation/Profile Sheets
- Self-Evaluation Profile Sheets and Summary of Strengths and Goals for Improvement
- Peer Evaluation Profile Sheets and Summary of Strengths and Goals for Improvement
- Group Profile of Learning and Communication Processes
- Class Profile of Learning and Communication Processes
- Individual Progress Report: Learning and Communication Processes

We will examine each of these tools in turn and explain their purposes. You may photocopy them for use with your students. Although these tools have been used and revised many times by other teachers, you and your students may wish to adapt some of the

language used in order to clarify the meaning for yourselves. (There will be more information about introducing students to the six processes in the Instructional Strategy section of this handbook.)

Descriptive Scales

On pages 29 to 34 you will find six Descriptive Scales, one for each of the six learning and communication processes — Exploring, Narrating, Imagining, Empathizing, Abstracting, and Monitoring. Although you will not be able to make full use of the Descriptive Scales until you and your students have gathered some information about their use of the six processes in a variety of learning activities, we need to introduce you to them here in order to give you some background information that will help you make sense of the other tools in the Evaluation Strategy.

The Descriptive Scales will help you identify examples of the six learning and communication processes in your students' language and actions. They will also help you make some initial judgments about their independent use of the processes. After you and your students have recorded information about their learning and communication processes in a number of different situations, you will be able to use the Descriptive Scales to help you analyse this information, make more definite diagnostic evaluations of their ability to use the processes independently, and decide what kinds of learning activities will help them become more independent where they need to do so. There will be more information about how to do this in the Instructional Strategy.

Key Indicators

The Descriptive Scales are all formatted in the same way. Across the top of each scale,

you will see four *key indicators* of the process being addressed. These key indicators are observable evidence that the student is using the process. They will help you see when and how independently your students are using the process.

Criterion Levels (Consistently Independent, Frequently Independent, Needs Some Assistance, Needs Much Assistance)

Along the left-hand side of each scale you will see four criteria (Consistently Independent, Frequently Independent, Needs Some Assistance, Needs Much Assistance) that identify the student's level of independence in the key indicator that you are observing. Each of the Descriptive Scales has a line separating the two criteria that describe independent performance from the two criteria that describe assisted performance. If you read across the scales from left to right, you will see that the descriptions for each key indicator correspond to the criterion on the left-hand side of the scale. These will help you establish the degree to which your students are demonstrating independence or a need for assistance in each of the key indicators for that process.

Although there is nothing wrong with needing assistance (all of us need assistance when we are learning something new), our goal is to help students move over the line from assisted to independent performance. And when we see that they are consistently independent in their use of the processes, then our goal is to encourage them to try a more challenging task that will, at first, require some assistance from others. In this way, we help them extend the boundaries of independent control over their own learning and communication processes.

DESCRIPTIVE SCALE
EXPLORING

	Key Indicators			
	becomes aware of prior knowledge, feelings, and values	**frames questions; searches for additional information**	**connects new with prior knowledge, feelings, and values**	**takes calculated risks where appropriate**
Consistently Independent	offers variety of ideas that reflect personal knowledge, feelings, and values	frames appropriate questions and searches a variety of sources	considers own position in light of new ideas	acts on inconsistent or incomplete data where appropriate
Frequently Independent	offers some ideas that reflect personal knowledge, feelings, and values	frames questions and searches available sources but may require reassurance	considers some aspects of own position in light of new ideas	acts on inconsistent or incomplete data where appropriate but may require reassurance
Needs Some Assistance	with encouragement, offers some ideas that reflect personal knowledge, feelings, and values	with help, frames questions and searches readily available sources	with help, considers some aspects of own position in light of new ideas	with help, acts on inconsistent or incomplete data where appropriate
Needs Much Assistance	even with encouragement, has difficulty offering ideas that reflect personal knowledge, feelings, and values	even with help, frames questions and searches haphazardly, using only what is at hand	even with help, considers new ideas only when they fit personal beliefs and opinions	even with help, has difficulty acting on inconsistent or incomplete data where appropriate

DESCRIPTIVE SCALE
NARRATING

	Key Indicators			
	uses time and space to organize remembered experience and information	**relates experience within and across subjects to clarify concepts**	**uses anecdotes in sharing experience**	**values and enjoys sharing experience, real and vicarious**
Consistently Independent	shares experience and information in a consistently coherent way	transfers relevant information and experience across topics	recalls, creates, or adapts anecdotes that clearly support meaning	indicates enthusiasm
Frequently Independent	shares experience and information in a generally coherent way	transfers some information and experience across topics	recalls, creates, or adapts anecdotes that generally support meaning	indicates interest
Needs Some Assistance	with some help, shares experience and information	with help, transfers some information and experience across topics	with prompting, shares anecdotes that generally support meaning	with prompting, indicates acceptance
Needs Much Assistance	even with help, shares experience and information randomly	even with help, has difficulty understanding relevance of information from other topics	even with prompting, seldom shares anecdotes that support meaning	even with help, indicates impatience or frustration

DESCRIPTIVE SCALE
IMAGINING

	Key Indicators			
	creates images and conveys associated feelings	**transforms images**	**imagines self in different situations, places, or times**	**uses figurative language**
Consistently Independent	selects effective detail to appeal to more than one sense; conveys feelings associated with images	alters and elaborates images to enhance meaning	imagines self in a variety of unfamiliar contexts	uses figurative language to enhance meaning
Frequently Independent	selects some effective detail to appeal to one or more senses; conveys some feelings associated with images	alters or elaborates images to clarify meaning	imagines self in some unfamiliar contexts	uses some figurative language to enhance meaning
Needs Some Assistance	with help, selects some detail to appeal to only one sense, usually vision; with prompting, conveys feelings associated with images	with help, alters or elaborates images to clarify meaning	with help, may imagine self in some unfamiliar contexts	with help, uses some figurative language to enhance meaning
Needs Much Assistance	even with help, has difficulty selecting detail or conveying feelings associated with images	even with help, has difficulty altering or elaborating images to clarify meaning	even with help, has difficulty imagining self in unfamiliar contexts	even with help, has difficulty using figurative language to enhance meaning

DESCRIPTIVE SCALE
EMPATHIZING

	Key Indicators			
	shifts attention away from self while communicating	**reserves judgment and disbelief where appropriate**	**selects language that takes audience into account**	**takes on the role of another**
Consistently Independent	actively attends to others and encourages communication	reserves judgment and disbelief in most situations where appropriate	varies language to suit many different situations	uses language and action that consistently represent the appropriate role
Frequently Independent	attends to others and receives communication openly	reserves judgment and disbelief in some situations where appropriate	varies language to suit familiar situations	uses language and action that suggest the appropriate role
Needs Some Assistance	with help, attends to others and receives some communication openly	with help, reserves judgment and disbelief in some situations where appropriate	with help, varies language to suit familiar situations	with help, uses language or action that suggest the appropriate role
Needs Much Assistance	even with help, has difficulty attending to others; receives communication compatible only with personal interests	even with help, has difficulty reserving judgment and disbelief where appropriate	even with help, has difficulty varying language according to situation	even with help, has difficulty using language or action that suggest the appropriate role

DESCRIPTIVE SCALE
ABSTRACTING

	Key Indicators			
	supports generalizations	**applies generalizations**	**evaluates the soundness and significance of generalizations**	**uses symbols**
Consistently Independent	provides relevant support for generalizations	makes plausible predictions and gives convincing explanations	examines generalizations from several perspectives	provides effective representation of a complex idea
Frequently Independent	provides some support for generalizations	makes some predictions and gives some explanations	examines generalizations from an alternate perspective	provides representation of a complex idea
Needs Some Assistance	with help, provides some support for generalizations	with help, makes predictions and gives explanations	with help, examines generalizations from an alternate perspective	with help, provides representation of a complex idea
Needs Much Assistance	even with help, has difficulty providing support for generalizations	even with help, has difficulty making predictions and giving explanations	even with help, has difficulty examining generalizations from an alternate perspective	even with help, has difficulty providing representation of a complex idea

DESCRIPTIVE SCALE
MONITORING

	Key Indicators			
	sets goals for learning and communication	**plans strategies for learning and communication**	**adjusts goals and strategies for learning and communication**	**facilitates learning and communication and perseveres**
Consistently Independent	sets realistic goals relevant to purpose	selects strategy relevant to purpose from a variety of possibilities	adjusts goals and strategies to fit changing communication context	elicits and maintains interest and momentum in spite of difficulties
Frequently Independent	sets some realistic goals related to purpose	selects strategy related to purpose from a set of possibilities	adjusts goals and strategies to take into account some aspects of changing communication context	maintains interest in spite of difficulties
Needs Some Assistance	with help, sets some realistic goals related to purpose	with help, selects strategy related to purpose from a set of possibilities	with help, adjusts goals and strategies to take into account some aspects of changing communication context	with prompting, maintains interest
Needs Much Assistance	even with help, has difficulty setting realistic goals related to purpose	even with help, has difficulty selecting strategy related to purpose	even with help, has difficulty adjusting goals and strategies to take into account changing communication context	even with prompting, has difficulty maintaining interest

Observation/Profile Sheets

Four forms of the Observation/Profile Sheet are provided

To help you and your students record your observations, judgments, and comments about their use of the six processes, we have provided you with a series of Observation/ Profile Sheets. The teachers who helped in the development of this program decided that they needed different forms of the Observation/Profile Sheets for different purposes. Therefore four different formats are provided on pages 38 to 41.

Form One can be used to make a comprehensive analysis of one student's learning and communication processes on a particular occasion in a particular learning situation (for example, during a small group discussion, during the evaluation of a piece of written work, or during an investigation in the science lab).

Form Two can be used to record observations of an individual student's learning and communication processes over a series of activities on different occasions. This form has been designed so that you can record the dates of your observations in the right-hand column.

Form Three can be used to record observations of two or three students who may be working together in a particular learning situation.

Form Four can be used when you want to apply the key indicators from the Descriptive Scales in your observation of a student's performance.

Forms One, Two and Three have essentially the same content. The six processes — Exploring, Narrating, Imagining, Empathizing, Abstracting, and Monitoring — are defined in brief phrases within parentheses. Below this capsule definition, you will find words or phrases describing the kind of things that students might do, say, or write when they are using the processes. Exploring, for example, is defined as

"discovering personal knowledge and making new connections" and then described in terms of actions such as "remembers, asks, guesses, 'tinkers,' 'digs,' researches." These definitions and descriptions will help you and your students identify examples of the processes in their language and actions.

Form four is simply a reduction of the key indicators from the Descriptive Scales presented earlier.

Making tentative judgments about students' independent use of the processes

All the forms can be used to record tentative judgments about the degree of independence your students are displaying in their use of the processes. You and your students can do this by checking or shading the appropriate column on the right-hand side of the form. The letters used at the top of the columns are based on the levels of the Descriptive Scales and are interpreted as follows:

I — independent performance
A — assisted performance
C — consistently independent
F — frequently independent
S — needs some assistance
M — needs much assistance

Creating profiles to show how independently students can use the processes

Form Two and Form Four can also be used to summarize the observations and evaluations you and your students have made of their learning and communication processes over a number of different learning situations. By shading in the appropriate column on either of these Observation/Profile sheets, you can create a profile showing the degree to which students can use the processes independently

However, you will need to record observations of your students' learning and communication processes in different kinds of situations in order to create an accurate profile of their independence in the six processes. You will probably find, for example, that as you track your students' learning and communication processes through a series of related activities, they will move back and forth through the six processes with growing

assurance and independence. You may also find that your students display greater independence in their use of the processes in some learning situations than they do in others. For instance, you may notice that some students use the processes more effectively in an oral discussion than they do in their writing.

The information that you gather about your students' learning and communication processes in a variety of different contexts will help you make accurate evaluations of their level of independence and sound decisions about the kinds of instructional activities that will help them become more independent uses of the processes. There will be further information about how to use the Observation/Profile sheets later in this handbook. There are also specific examples, tracking students' learning and communication processes over a series of related learning activities, in the Diagnostic Teaching Units in Handbook 2, 3, and 4.

OBSERVATION/PROFILE SHEET (FORM ONE)

Communication mode/situation/topic: _____

Date: _____

Name/Class: _____

Process	Examples/anecdotal comments/tally marks	I		A	
		C	F	S	M
Exploring (discovering personal knowledge and making new connections) remembers, asks, guesses, "tinkers," "digs," researches, manipulates, experiments					
Narrating (telling about experiences in order to organize them and to understand their significance) selects, recounts, orders, reports, shares					
Imagining (creating and transforming mental images) compares, describes, visualizes, "dreams," uses metaphor, translates ideas into another medium, envisages a successful performance					
Empathizing (understanding the perspectives of others) trusts, respects, accepts, encourages, paraphrases, takes on role, listens actively					
Abstracting (moving beyond concrete thought) classifies, generalizes, hypothesizes, theorizes, symbolizes, evaluates, justifies, supports					
Monitoring (regulating thought, language, and action) checks understanding, reconsiders, plans, decides, adapts, facilitates, persists					

COMMENTS (use back of sheet)

OBSERVATION/PROFILE SHEET (FORM TWO)

Communication mode/situation/topic: _____ **Name/Class:** _____

Process	Examples/anecdotal comments/tally marks	I		A		Date
		C	F	S	M	
Exploring (discovering personal knowledge and making new connections) remembers, asks, guesses, "tinkers," "digs," researches, manipulates, experiments						
Narrating (telling about experiences in order to organize them and to understand their significance) selects, recounts, orders, reports, shares						
Imagining (creating and transforming mental images) compares, describes, visualizes, "dreams," uses metaphor, translates ideas into another medium, envisages a successful performance						
Empathizing (understanding the perspectives of others) trusts, respects, accepts, encourages, paraphrases, takes on role, listens actively						
Abstracting (moving beyond concrete thought) classifies, generalizes, hypothesizes, theorizes, symbolizes, evaluates, justifies, supports						
Monitoring (regulating thought, language, and action) checks understanding, reconsiders, plans, decides, adapts, facilitates, persists						

OBSERVATION/PROFILE SHEET (FORM THREE)

Communication mode/situation/topic: _____ **Date:** _____

Names: _____ _____ _____

Process	Examples/anecdotal comments/tally marks	I		A		Examples/anecdotal comments/tally marks	I		A		Examples/anecdotal comments/tally marks	I		A	
		C	F	S	M		C	F	S	M		C	F	S	M
Exploring (discovering personal knowledge and making new connections) remembers, asks, guesses, "tinkers," "digs," researches, manipulates, experiments															
Narrating (telling about experiences in order to organize them and to understand their significance) selects, recounts, orders, reports, shares															
Imagining (creating and transforming mental images) compares, describes, visualizes, "dreams," uses metaphor, translates ideas into another medium, envisages a successful performance															
Empathizing (understanding the perspectives of others) trusts, respects, accepts, encourages, paraphrases, takes on role, listens actively															
Abstracting (moving beyond concrete thought) classifies, generalizes, hypothesizes, theorizes, symbolizes, evaluates, justifies, supports															
Monitoring (regulating thought, language and action) checks understanding, reconsiders, plans, decides, adapts, facilitates, persists															

COMMENTS (use back of sheet)

OBSERVATION/PROFILE SHEET (FORM FOUR)

DATE: _____ **NAME:** _____

	Process	Observations	I		A	
			C	F	S	M
Exploring	becomes aware					
	frames questions					
	connects					
	takes calculated risks					
Narrating	uses time and space					
	relates experience					
	uses anecdote					
	values and enjoys					
Imagining	creates images					
	transforms images					
	imagines self					
	uses figurative language..					
Empathizing	shifts attention					
	reserves judgment					
	selects language					
	takes on role					
Abstracting	supports generalizations					
	applies generalizations					
	evaluates soundness.....					
	uses symbol					
Monitoring	sets goals					
	plans strategies					
	adjusts					
	facilitates					

COMMENTS (use back of sheet)

Student Self-Evaluation and Peer Evaluation Forms

Teachers who assisted with the development of this program have designed special forms for students to use in self evaluation and peer evaluation. These include two forms of a Self-Evaluation Profile Sheet and two forms of a Peer Evaluation Profile Sheet. Both types of profile sheets are used along with a Summary of Strengths and Goals for Improvement. These forms are intended to be used after students have had an opportunity to use the Observation/Profile Sheets to record observations of their own learning and communication processes, and those of their peers, in a variety of learning activities.

Self-Evaluation Profile Sheets

If you examine **Form One** and **Form Two** of the Self-Evaluation Profile Sheets (pages 44 and 45), you will notice that they are similar to **Form Four** of the Observation/Profile Sheet in that students are evaluating their learning and communication processes in terms of the four key indicators of each process. The difference is that the key indicators have been expressed in a more personalized way, inviting self-evaluation (I try . . . , I ask . . . , etc.). They have also been stated in language more comprehensible to students.

The two forms of the Self-Evaluation/Profile Sheet differ from one another in the rating scale used. In **Form One**, the rating scale is the same as that used on the Observation/ Profile Sheets:

I — independent performance
A — assisted performance
C — consistently independent
F — frequently independent
S — needs some assistance
M — needs much assistance

Many students have no difficulty using this scale. However, teachers have found that some students feel uncomfortable about having to admit that they need assistance. **Form Two** provides an alternative for these

students. It enables them to evaluate their independence in terms of the frequency with which they have observed themselves using the processes. Both forms result in a profile that will show students which learning and communication processes they can use more independently and which ones they need to work on so as to become more independent.

Summary of Strengths and Goals for Improvement

After students have completed the Self-Evaluation Profile Sheet, they use the Summary of Strengths and Goals for Improvement to comment specifically on their profile. They are asked to identify the processes they see as their strengths and those that they would like most to improve upon. They are also asked to suggest what they would like to do to improve in these areas and what they would like you to do to help them improve.

Peer Evaluation Profile Sheets

The two forms of the Peer Evaluation Profile Sheet and the Summary of Strengths and Goals for Improvement that accompany them are identical to the Self-Evaluation materials except that the pronoun "I" has been replaced with the pronoun "you."

Use in conferencing with individuals and groups about their learning and communication processes

When the students have completed the Self-Evaluationand Peer Evaluation Profile sheets and the Summary of Strengths and Goals for Improvement, these can be used, along with the Observation Profile Sheets that you and your students have completed, as the bases for individual and group conferences in which you share your observations and evaluations of their learning and communication processes and decide what you can do together to help them develop greater independence where they need to do so.

SELF-EVALUATION PROFILE SHEET (FORM 1): HOW AM I DOING?

DATE:_____ **NAME:** _____ **SELF-EVALUATION #:**_____

Rating Scale:	I C	I F	A S	A M
EXPLORING				
When I encounter new ideas, I try to recall what I already know, feel, and believe about the topic.				
I ask questions about new ideas and search for additional information.				
I connect new ideas with what I already know, feel, and believe.				
I take calculated risks in order to find out what I understand and what I can accomplish.				
NARRATING				
I use time and space to organize experiences and information.				
I connect experiences within and across different subjects to help me understand new ideas.				
I use anecdotes (stories) to share experiences that are related to what I am learning.				
I value and enjoy sharing my experiences and hearing about those of others.				
IMAGINING				
I use images and details that appeal to the senses to tell others what I mean or feel.				
I imagine how images can be changed to make them clearer, more meaningful, or more appealing.				
I imagine myself in different situations, places, or times.				
I use figurative language, like metaphors and similes, to help myself and others understand ideas and feelings.				
EMPATHIZING				
I listen carefully to others and encourage them to share their ideas with me.				
I avoid making hasty judgments about people and ideas.				
I select and use language that is appropriate for different audiences.				
I take on different roles to suit different situations and purposes.				
ABSTRACTING				
I support my generalizations or theories.				
I apply my generalizations by making reasonable predictions and by explaining my ideas clearly.				
I evaluate my generalizations from different points of view.				
I use symbolism (words, mathematical and scientific notations, etc.) to understand and represent ideas.				
MONITORING				
I set realistic goals for learning and communicating with others.				
I plan strategies that will help my meet my goals.				
I check how successfully I am meeting my goals and adjust my goals and strategies when necessary.				
I keep interested in my work and can overcome difficulties I encounter.				

SELF-EVALUATION PROFILE SHEET (FORM 2): HOW AM I DOING?

DATE:_____ **NAME:**_____ **SELF-EVALUATION#:**_____

Rating Scale:	Almost Always	More than Half of the Time	Less than Half of the Time	Almost Never
EXPLORING				
When I encounter new ideas, I try to recall what I already know, feel, and believe about the topic.				
I ask questions about new ideas and search for additional information.				
I connect new ideas with what I already know, feel ,and believe.				
I take calculated risks in order to find out what I understand and what I can accomplish.				
NARRATING				
I use time and space to organize experiences and information.				
I connect experiences within and across different subjects to help me understand new ideas.				
I use anecdotes (stories) to share experiences that are related to what I am learning.				
I value and enjoy sharing my experiences and hearing about those of others.				
IMAGINING				
I use images and details that appeal to the senses to tell others what I mean or feel.				
I imagine how images can be changed to make them clearer, more meaningful, or more appealing.				
I imagine myself in different situations, places, or times.				
I use figurative language, like metaphors and similes, to help myself and others understand ideas and feelings.				

Rating Scale:	Almost Always	More than Half of the Time	Less than Half of the Time	Almost Never
EMPATHIZING				
I listen carefully to others and encourage them to share their ideas with me.				
I avoid making hasty judgments about people and ideas.				
I select and use language that is appropriate for different audiences.				
I take on different roles to suit different situations and purposes.				
ABSTRACTING				
I support my generalizations or theories.				
I apply my generalizations by making reasonable predictions and by explaining my ideas clearly.				
I evaluate my generalizations from different points of view.				
I use symbols (words, mathematical and scientific notations, etc.) to understand and represent ideas.				
MONITORING				
I set realistic goals for learning and communicating with others.				
I plan strategies that will help me meet my goals.				
I check how successfully I am meeting my goals and adjust my goals and strategies when necessary.				
I keep interested in my work and can overcome difficulties I encounter.				

SUMMARY OF STRENGTHS AND GOALS FOR IMPROVEMENT

The processes I see as my strengths are:

exploring ❑ imagining ❑ abstracting ❑

narrating ❑ empathizing ❑ monitoring ❑

The processes I would like to improve upon the most are:

exploring ❑ imagining ❑ abstracting ❑

narrating ❑ empathizing ❑ monitoring ❑

In order to improve in these areas, I would like to try:

My teachers can help me by:

PEER EVALUATION PROFILE SHEET (FORM 1): OBSERVATION OF_____

DATE:_____ OBSERVER:_____ PEER-EVALUATION #:_____

Rating Scale:	I		A	
	C	F	S	M
EXPLORING				
When you encounter new ideas, you try to recall what you already know, feel, and believe about the topic.				
You ask questions about new ideas and search for additional information.				
You connect new ideas with what you already know, feel, and believe.				
You take calculated risks in order to find out what you understand and what you can accomplish.				
NARRATING				
You use tiime and space to organize experiences and information.				
You connect experiences within and across different subjects to help you understand new ideas.				
You use anecdotes (stories) to share experiences that are related to what you are learning.				
You value and enjoy sharing your experiences and hearing about those of others.				
IMAGINING				
You use images and details that appeal to the senses to tell others what you mean or feel.				
You imagine how images can be changed to make them clearer, more meaningful, or more appealing.				
You imagine yourself in different situations, places, or times.				
You use figurative language, like metaphors and similes, to help yourself and others understand ideas and feelings.				
EMPATHIZING				
You listen carefully to others and encourage them to share their ideas with you.				
You avoid making hasty judgments about people and ideas.				
You select and use language that is appropriate for different audiences.				
You take on different roles to suit different situations.				
ABSTRACTING				
You support your generalizations or theories.				
You apply your generalizations by making reasonable predictions and by explaining your ideas clearly.				
You evaluate your generalizations from different points of view.				
You use symbolism (words, mathematical and scientific notations, etc.) to understand and represent ideas.				
MONITORING				
You set realistic goals for learning and communicating with others.				
You plan strategies that will help you meet your goals.				
You check how successfully you are meeting your goals and adjust your goals and strategies when necessary.				
You keep interested in your work and can overcome difficulties you encounter.				

PEER EVALUATION PROFILE SHEET (FORM 2): OBSERVATION OF_____

DATE:_____OBSERVER:_____ PEER EVALUATION#:_____

Rating Scale:	Almost Always	More than Half of the Time	Less than Half of the Time	Almost Never
EXPLORING				
When you encounter new ideas, you try to recall what you already know, feel, and believe about the topic.				
You ask questions about new ideas and search for additional information.				
You connect new ideas with what you already know, feel, and believe.				
You take calculated risks in order to find out what you understand and what you can accomplish.				
NARRATING				
You use time and space to organize experiences and information.				
You connect experiences within and across different subjects to help you understand new ideas.				
You use anecdotes (stories) to share experiences that are related to what you am learning.				
You value and enjoy sharing your experiences and hearing about those of others.				
IMAGINING				
You use images and details that appeal to the senses to tell others what you mean or feel.				
You imagine how images can be changed to make them clearer, more meaningful, or more appealing.				
You imagine yourself in different situations, places, or times.				
You use figurative language, like metaphors and similes, to help yourself and others understand ideas and feelings.				

Rating Scale:	Almost Always	More than Half of the Time	Less than Half of the Time	Almost Never
EMPATHIZING				
You listen carefully to others and encourage them to share their ideas with you.				
You avoid making hasty judgments about people and ideas.				
You select and use language that is appropriate for different audiences.				
You take on different roles to suit different situations.				
ABSTRACTING				
You support your generalizations or theories.				
You apply your generalizations by making reasonable predictions and by explaining your ideas clearly.				
You evaluate your generalizations from different points of view.				
You use symbolism (words, mathematical and scientific notations, etc.) to understand and represent ideas.				
MONITORING				
You set realistic goals for learning and communicating with others.				
You plan strategies that will help you meet your goals.				
You check how successfully you are meeting you goals and adjust your goals and strategies when necessary.				
You keep interested in your work and can overcome difficulties you encounter.				

SUMMARY OF STRENGTHS AND GOALS FOR IMPROVEMENT

The processes I see as your strengths are:

exploring ❑ imagining ❑ abstracting ❑

narrating ❑ empathizing ❑ monitoring ❑

The processes I think you could improve upon the most are:

exploring ❑ imagining ❑ abstracting ❑

narrating ❑ empathizing ❑ monitoring ❑

In order to improve in these areas, you could try:

Your teachers can help you by:

Group Profiles

After you and your students have created individual profiles of their learning and communication processes, you can use this information to establish group profiles of the processes for the whole class, using the form on page 53. Place the students' names in the appropriate cells for each of the processes.

You can use the group profiles in various ways to plan instructional activities. For example, if you are planning a small group learning activity in which it would be desirable to have in every group a student who is consistently independent in the process of exploring, you can easily identify these students from the group profiles. On the other hand, you can readily identify those students who usually need much assistance in empathizing, for example, and plan specific instructional activities for that group to help them become more independent in this process.

GROUP PROFILES OF LEARNING AND COMMUNICATION PROCESSES

Class:_____

	Exploring	Narrating	Imagining	Empathizing	Abstracting	Monitoring
Consistently Independent						
Frequently Independent						
Needs Some Assistance						
Needs Much Assistance						

Class Profile

Some teachers have found it useful to keep a class profile of learning and communication processes. They developed the form on page 55 for this purpose. The names of the six processes are abbreviated across the top of the form. You can summarize each student's individual profile by entering a letter from the key to show how independently they can demonstrate each of the processes. You can also record the date on which you had a conference with the student and the strategies you have decided upon to help the student become more independent in one of the processes. You can maintain a list of strategies that you have found most effective at the bottom of the page as a ready reference.

Individual Progress Report

The last tool in the Evaluation Strategy will help you and your students show their progress in the six learning and communication processes over a school year. You can do this by shading the appropriate boxes on the for (page 56) for each report card period (or other intervals of your choice). There are spaces for the date and for comments about the student's progress.

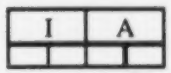
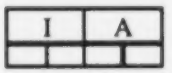
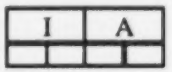
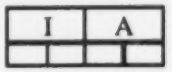
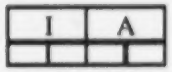
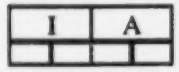
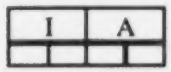
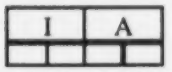
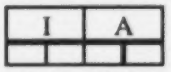
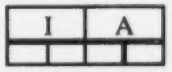
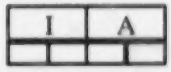
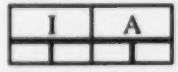
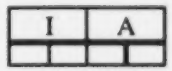
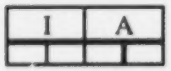
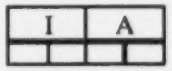
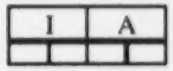
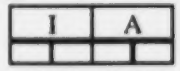
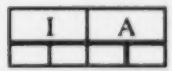
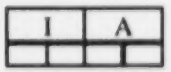
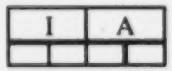
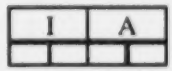
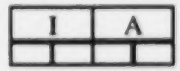
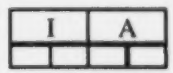
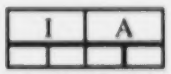
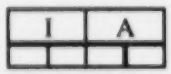
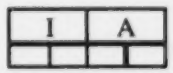
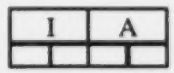
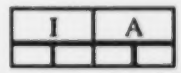
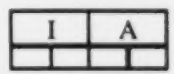
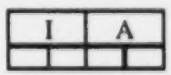
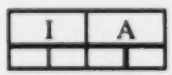
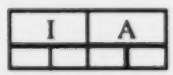
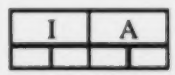
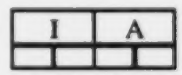
This form could be used in conferencing with students, parents, or colleagues. It could also be passed on to the student's teachers in the next school year or semester to inform them about the student's progress toward independence in the six processes. This will help them establish a starting point to promote further growth.

CLASS PROFILE OF LEARNING AND COMMUNICATION PROCESSES

Class_____ **KEY:** **C - Consistently Independent** **S - Needs Some Assistance**
F - Frequently Independent **M - Needs Much Assistance**

NAME	Ex	Na	Im	Em	Ab	Mo	Conf. Date	Strategies

Individual Progress Report: Learning and Commmunication Processes

Name: Class:	Exploring	Narrating	Imagining	Empathizing	Abstracting	Monitoring
Date: *Comments:*						
Date: *Comments:*						
Date: *Comments:*						
Date: *Comments:*						
Date: *Comments:*						
Date: *Comments:*						

The Instructional Strategy

In this part of the handbook, you will find information that will help you implement Evaluating Students' Learning and Communication Processes in your classroom. There are suggestions in the instructional strategy to assist you in:

- implementing the program in your classroom in manageable stages
- introducing students to the program and involving them in self-evaluation of their learning and communication processes
- selecting instructional strategies and learning activities to help students become more independent in the processes and to challenge students who are already demonstrating some independence
- collaborating with other teachers across the curriculum to promote students' independence in the processes
- communicating and collaborating with parents to help students meet their goals for greater independence in the processes
- designing your own diagnostic teaching units to integrate diagnostic evaluation of students' learning and communication processes within your instructional program

Getting Started with ESLCP: Some Suggestions from Other Teachers

- *Examine the instructional units you are planning to use with your classes to see whether or not the learning activities will enable students to use the six processes of ESLCP. Make adjustments where necessary to provide opportunities for students to use the processes.*

- *Pick your best class and begin by making random observations of the students' learning and communication processes. Share and discuss them with your students to begin clarifying the meaning of the processes together.*

- *Make random observations as described above and ask students to help you categorize them according to the six processes on the Observation/Profile Sheet.*

- *Introduce the processes one or two at a time, when you are going to emphasize them in a particular lesson. Ask students to give examples of how they will demonstrate the processes. (What does* ***exploring*** *look like? What does it sound like?) After the activity, ask students to list examples to show how they demonstrated the process.*

- *After students have been introduced to the processes, ask them to predict which processes will be emphasized in a particular activity.*

- *When you are ready to begin making diagnostic observations and evaluations of individual students, start with a small number (two or three at most). If other students are involved in self-evaluation and peer evaluation at the same time, and they know that eventually you will be observing them, too, they will not feel neglected.*

- *Enlist the help of other educators (student teachers, other teachers, your resource or special education teacher, your teacher-librarian, your administration, for example) in making observations and evaluations of students' learning and communication processes. They can benefit, too, from learning about the program.*

- *Use a tape recorder and a video camera to record students at work (in a discussion, rehearsing a presentation, doing a lab, for example). This leaves you free to manage the class and assist other students. You (and the students selected for observation) can review the audiotapes and videotapes at a later point, making observations and evaluations of the students' learning and communication processes.*

- *Listen to or view portions of an audiotape or videotape, near the beginning, middle, and end —not the whole thing. Students will display their levels of independence several times in the course of an activity, so you can observe and evaluate this by reviewing parts of an audiotape or videotape.*

Implementing the Program in Manageable Stages

Don't try to take on the whole program all at once

We have presented you with many tools for using this program in your classroom. We don't expect you to use them all at once, though. Over time, we hope that you and your students will develop a shared understanding of the six learning and communication processes, which will enable you to observe and evaluate their use of the processes automatically and easily. However, this is a long-term goal requiring many months to accomplish. For now, you need to find a comfortable starting point for your use of the program.

Find a place to start that fits your teaching style and your students' needs

There are many ways to begin using the program. On page 58 there are some specific suggestions for getting started, gathered from teachers who have used ESLCP in their classes. You may find a suggestion that seems appropriate to your situation. Perhaps these suggestions will spark an idea of your own as to how you can begin using the program in your classroom.

Try making random observations and sharing these with your students

Start small. Don't try to evaluate every student in every learning activity in all your classes right away. You may find it helpful to begin using the program in a relatively informal way, making random observations of your students' learning and communication processes and sharing them with your students. This approach can help you and your students become familiar with the different ways in which they demonstrate the processes in your classroom. It also communicates your expectations regarding the skills you want students to master. In addition, the positive feedback you give students about their work can enhance their self-esteem.

On page 60 there is an example of some random observations made in a Science 14 class where the students were designing posters to illustrate the safe handling of acids and bases. (The assignment is described in detail in Handbook 4, which contains the

OBSERVATION/PROFILE SHEET (FORM ONE)

Communication mode/situation/topic: *Acids and Bases – creating posters to promote safety*

Date: *December 11*

Name/Class: *Science 14*

Process	Examples/anecdotal comments/tally marks
Exploring (discovering personal knowledge and making new connections) remembers, asks, guesses, "tinkers," "digs," researches, manipulates, experiments	• *Some students were reluctant to get started —comments suggest they lack confidence in their artistic ability.* • *Some students referred to their text book (Household Science) for inspiration.* • *Many students asked the teacher relevant questions (e.g., about the effects of ammonia).* • *One student consulted a biology index to find an illustration of the skeletal structure of the human hand.* • *Three students used a planning sheet, trying out different approaches.* • *Two students looked at what other students are doing.* • *Some students stared into space for a period of time before writing or sketching anything.*
Narrating (telling about experiences in order to organize them and to understand their significance) selects, recounts, orders, reports, shares	• *Two students related experiences from childhood where dangerous substances, containing acids or bases, had been stored in food containers.* • *One student recounted a television drama in which potassium nitrate was added to water, causing an explosion.* • *Two students recalled the details of the litmus test they had performed during the unit.* • *The teacher and one of the students recalled stories of ships being rapidly destroyed by fire as a consequence of the composition of the metal used in their construction.* • *The teacher frequently encouraged students to recall the lab activities of the unit (what they did, what happened, etc.).*
Imagining (creating and transforming mental images) compares, describes, visualizes, "dreams," uses metaphor, translates ideas into another medium, envisages a successful performance	• *One student used "The Ten Commandments" as a framework for the poster. (There may have been many other examples of imagining that we did not happen to see because we were doing random observations of all the students rather than intensive observations of a few. It is also possible that we need to develop our ability to see imagining when it is displayed nonverbally—in students' drawings or in their actions, for example.)*
Empathizing (understanding the perspectives of others) trusts, respects, accepts, encourages, paraphrases, takes on role, listens actively	• *One student helped another with his drawing.* • *Two students complimented another on his poster, describing it as "spiffy-looking."* • *One girl declared, "I don't need science for what I want to be when I grow up."; yet she used vocabulary, such as "toxic" and "corrosive," accurately and appropriately to describe the effects of acids and bases in her poster.*
Abstracting (moving beyond concrete thought) classifies, generalizes, hypothesizes, theorizes, symbolizes, evaluates, justifies, supports	• *Most students incorporated conventional hazard symbols appropriately in the design of their poster. One student created an original symbol.* • *Most students applied what they had learned about acids and bases to the safe handling of these substances in the school lab and in the home.* • *Many students gave examples of household products containing acids and bases and provided support for their examples (e.g., Windex — has ammonia in it).* • *A student asked the teacher about the relationship between base reactions and potassium nitrate.*
Monitoring (regulating thought, language, and action) checks understanding, reconsiders, plans, decides, adapts, facilitates, persists	• *Three students used planning sheets to draft and organize ideas for their posters.* • *One student checked the spelling of "deceiving" with another student.* • *One student selected a suitable synonym ("consumed") when uncertain of the past participle of "drink."* • *One student chose to complete a written assignment before beginning the poster assignment, commenting "If I don't do this first, I know I won't get it done."*

COMMENTS (use back of sheet)

Diagnostic Teaching Unit on Acids and Bases for Science 14.) The columns on the right-hand side of the Observation/Profile Sheet have been removed to create more space for our observations. Originally, of course, the observations were in point form and much more abbreviated — as you would record them if you were making observations for your own use.

Use the program to help you accomplish an important goal for students' learning

Consider your own goals for students' learning, particularly where you would most like to see an improvement in their achievement, and use the program to help you accomplish this. A high school science teacher who participated in the inservice workshops for this program decided that he would use it initially to improve his students' skills in the lab. He wanted to see them **empathizing** more independently with the role of a scientist: observing safety precautions, selecting and using equipment appropriately, taking accurate readings and measurements, using precise language to describe their observations, and so on. The teacher planned to introduce the students to the processes, videotape them in the lab, ask them to complete a self-evaluation of their ability to empathize with the role of a scientist (focusing on specific examples of language and actions that would demonstrate this), and then help them develop plans for improving or extending their skills.

Use it to help you understand and implement a new kind of learning activity in your classroom

If you are trying something new in your classroom (journal writing, cooperative learning, writing with word processors, for example) you may be able to use ESLCP to help you implement it. A junior high school teacher who attended one of our in-services was trying to use small group discussions in her social studies classes. She had been looking for something that would help her understand and evaluate her students' learning and communication skills in this kind of learning activity. Her search had turned up many instruments that could be used to evaluate students' oral language skills summatively in formal presentations, but nothing that could be

used to gather diagnostic information in a more informal communication situation. In ESLCP, she found what she was seeking.

Observe and evaluate the learning and communication processes of only a few students to with

When you begin to make observations and evaluations of the learning and communication processes of a few individual students (probably no more than two or three to start with), remember that students will demonstrate their independence in the processes frequently in the course of a learning activity. It is not necessary to capture their every word and action on the Observation/Profile Sheet. Rather, aim for observing the students in a variety of learning situations. This will enable you to see whether or not they consistently display independence in the key indicators of the six processes.

Sample the students' learning and communication processes in different learning situations

It will also help you see how the context of a learning activity affects their demonstration of independence. You may find, for example, that some students show independence in many of the key indicators when they are taking part in a small group discussion, but not when they are required to write about the same ideas in a formal communication situation. You can examine the differences with the students to find out why they exist and what needs to be done. Perhaps the design and process of the writing assignment need to be altered so that the students have a better understanding of the purpose of their writing, a more clearly defined role and audience, or an opportunity to have someone else edit their first draft.

Use the Diagnostic Teaching Units as a guide to evaluating students' learning and communication processes during classroom activities

When you have reached the stage where you want to begin making intensive observations and evaluations of a few students, the Diagnostic Teaching Units can help you see how to plan and carry out diagnostic evaluation of students' learning and communication processes during regular classroom activities throughout a unit of work. Each handbook also contains samples of students' work collected during the pilot study of the program, along with an analysis of the learning and communication processes displayed in the

work. There are also suggestions for helping students develop greater independence in the processes where they need to do so and for challenging them when they consistently display independence.

If you teach the subject area and grade level for which the Diagnostic Teaching Unit was designed, you can use it with your own students. You will find further information about how to use the Diagnostic Teaching Units in the introduction to the handbook.

As soon as possible, get students involved in self-evaluation and peer evaluation of their learning and communication processes and in collaborative goal setting to become more independent in the processes. There is information in the next section that will help you do this.

This logo was created by junior high school students in one of the schools where ESLCP was piloted. The students quickly assumed ownership of the program, which they nicknamed the "DO IT" program, an acronym for "diagnostic observations" and "instructional techniques."

Using Student Self-Evaluation

Students need to be involved in the evaluation process

One of the cornerstones of the *Evaluating Students Learning and Communication Processes* Program is a conviction that the learner is an active participant in the learning process. This implies an active role for the student in the evaluation process, too. To achieve in school and to succeed in the adult world of work, students must become life-long learners who can assess their strengths realistically and set appropriate goals to improve their performance and challenge themselves to new heights. This is an important reason for involving them in self-/elvaluation and peer evaluation of their learning and communication processes. If evaluation and goal-setting is a collaborative endeavour, students are more likely to take ownership of their learning and pride in their accomplishments.

There are many way of introducing students to the six processes and getting them involved in self and peer evaluation. The teachers who have helped us develop this program have shown us that students can learn about the six processes along with their teachers — with some encouraging fringe benefits as part of the process. In this section, we will recount some of their experiences and present examples of students' self-evaluations of their learning and communication processes.

We have used pseudonyms throughout to protect the anonymity of the students. The transcripts have been edited to remove some of the false starts, pauses, repetitions, and "place holder" expressions (such as "like," "okay" and "uhm") that regularly occur in the oral language of participants in informal small group discussions. While we were reluctant to remove these characteristic elements of talk, we decided to do this so that you are not distracted from the purpose and substance of the discussions.

Exploring and Validating What Students Know About the Processes

Teachers can help students find out what they already know about the six processes

One of the teachers who helped us develop ESLCP uses it with junior high school special-needs students who are gifted, but learning disabled. She begins by giving her students only the names of the six processes. She asks them to work together in small groups to define each process and give examples of things they might say or do when they are using that process in her classroom.

Teachers and students use the processes as they talk about what the processes mean to them

When they have finished the task, they meet with their teacher to share their definitions and examples. On one occasion, she videotaped their discussion. Some excerpts from the discussion show how the teacher and the students constructed the meaning of the processes together. The excerpts also illustrate how they used the six learning and communication processes themselves in the course of their discussion.

We begin with an excerpt from their discussion of **imagining**. (They have previously discussed **exploring** and **narrating**.)

Andrew: I used to think that imagining was just like dreaming, but then

Teacher: Yes ...

Andrew: when I got this (i.e., the assignment to define the processes), I sort of think it's different, but I don't think that's really what it means, but I think imagining would be just forming or making a picture in your mind of something ...

Teacher: Mm hmm, now once again, as with Brendan's original idea, we're back into your mind. How can you get it such that any one of us can say, "Wow, that Andrew is imagining!"? What would we have that would let us know that you're imagining? What would we observe?

Andrew: I could be writing something, a story, I could imagine, or if I was dreaming of winning a lottery or something, I'd say, "Oh and then I'm going to buy a car and a house" and all that.

Teacher: Okay, Brendan?

Brendan: Or you could put out some creative product ... or symbolization of your imagination.

Teacher: Sorry, I didn't get that.

Brendan: Symbolization of your imagination, like a sculpture, or a picture, or a story, or something like that.

The discussion of imagining involves the use of all the processes

Andrew's opening remark about imagining (line 1) illustrates the processes of **exploring** and **narrating**. He recalls what he used to think about imagining, making an immediate connection with the experience of "dreaming," which is very close to a word we use on the Observation/Profile Sheet to describe this process — "dreams." His subsequent comment (line 3) illustrates **monitoring**. He is reconsidering his previous understanding of imagining, searching for a more precise way to describe the difference between what he used to think about imagining (perhaps that it was just idle daydreaming or wild fantasizing) and a new understanding that is taking shape as he speaks.

When the teacher asks Andrew to explain how he might demonstrate that he was imagining, his response illustrates the processes of **exploring**, **monitoring**, and **empathizing** with his listeners. The two examples he gives (writing a story and telling what he would buy if he won a lottery) make his meaning clearer and may bring to mind similar kinds of experiences for his teacher and classmates. Both are examples of translating "a picture in your mind" into something observable — written or spoken language.

Brendan adds examples of visual media (a sculpture and a picture) that express the imagination. In just a few utterances, we observe Brendan **exploring**, **empathizing** with Andrew's perspective, **monitoring** his use of language, and **abstracting** (in the sense of supporting a generalization).

This excerpt illustrates that while one process may predominate in a discussion, in this case **exploring**, other processes will also surge to the surface of the talk. We will see a similar pattern in subsequent excerpts from the discussion.

Cal: Usually imagination sometimes has an end product, say a campaign for role-playing (referring to Dungeons and Dragons), where the DM will take that campaign and become the imagination's narrator.

Teacher: Okay, I guess that idea of an end product comes to mind as I think about Brendan's example of that external product, that artwork, the sculpture ...

Brendan: Well that's (referring to Cal's example above) less concrete, through.

Cal: (Shaking his head in response to what Brendan has said) I find that whenever you're imagining, usually there's an end product, I mean, artists will visualize, therefore giving ...

Brendan: Those are obviously more concrete, because once you sort of do the thing, it's done, but if you're doing something that's ... more vocal, then that's more malleable.

Teacher: How could you show me you're imagining, using only the vocals?

Cal: (Responding with an example.) If I won a million dollars, I would buy the house on 14th Street ...

Brendan: You would?

Cal: (continuing his fantasy) sitting just over the hill ...

Brendan: What's it like?

Cal: It's up near Mount Royal.

The discussion takes a new direction: Brendan discovers that imagining is a "malleable" process

In this part of the discussion, Cal extends Brendan's suggestion that imagining often has an observable "product." He reopens this line of thought, making a connection with the group's shared interest in the role-playing game, Dungeons and Dragons. The ensuing discussion leads Brendan into some new directions.

Brendan's comments in lines 3 and 5 show that he is **monitoring** his thinking and language. In line 3, he attempts to refine his earlier suggestion that the process of imagining is demonstrated in an end product. He persists, over Cal's objections, and begins to see another dimension of imagining: we can observe it, not just in its end product, but also in what a person says and does along the way to an end product. And because we can capture imagining as it is happening it is "malleable."

Brendan has achieved an important insight here, for it implies that a person does not need to be an artist to engage in imagining. and because imagining is a "malleable" process, we can work with it, practise it, and improve our ability to use it in our learning and communication with others.

The teacher picks up Brendan's idea, (line 6) encouraging the boys to explore it further. When Cal responds with an example of imagining "out loud," Brendan asks questions that encourage Cal to elaborate upon his vision of the house he would buy if he won a lottery. In so doing, Brendan displays his own skill in **monitoring** (facilitating the communication of another person).

Cal: Also the fact that when the writer is trying to imagine and bring your imagination alive ...

Teacher: Mm hmm.

Cal: ... and cast a picture upon your mind in that writing so that you get drawn into the story so that you keep going ...

Teacher: Mm hmm.

Cal: ... so that you'll continue to read. That is what some people will call the writer's talent, if you make people ... not only listen to his story, but enjoy it through their imagination ...

Teacher: Mm hmm.

Cal: ...drawing out of their imagination and letting ... (flicking his fingers as he tries to elaborate) wishing to be another person or so ...

Teacher: Mm hmm.

Brendan: Also you could be doing it with facts and presenting them in a creative and interesting manner, like commercials, that's a really good example of imagining, because if you just said, (shooting his arm forward and speaking forcefully) "Buy our toothpaste! It's better!" I mean, people are gonna go, (in a derisive tone) "Mm hmm, right!" But if you have a nifty gimmick, like the little bunny that they have for Duracell, which is almost a cult symbol now ...

Teacher: So we have Brendan *really* imagining now, at this point, right?

The students discuss the role of imagining in writing

Just before the excerpt on page 70, the teacher had asked the students to think about how imagining would be demonstrated in their writing. Don and Andrew thought immediately of fantasy writing ("stuff that isn't true or real," as Don put it). This prompted Cal to explore "the writer's talent" in the writing of literature.

As Cal describes how the writer of literature evokes images to capture the reader's imagination (lines 1, 3, 5, and 7), we see him **empathizing** with the role of a writer, who must, in turn, empathize with the role of a reader. Cal's understanding of how **empathizing** and **imagining** operate in the creation of a literary work might be a strength that he can bring to his own reading and writing of literature.

Brendan picks up on Cal's explanation but extends it beyond the boundaries of literature, giving examples to show that effective informational writing also depends on the writer's ability to find a novel way to appeal to the imagination of the audience (line 9). In so doing, Brendan demonstrates his own capacity for **imagining**, as his teacher points out (line 10). Perhaps this independence in imagining might be reflected in his own informational writing.

Cal: "Empathizing" seems to be ... when you hear people go (reads from Observation/Profile Sheet) "trusts, respects, encourages, paraphrases, takes on roles." I'd say we got that one dead on the pin.

Brendan: Mm hmm.

Cal: A couple of days ago, I used "trust," you (turning to Don) used "encouragement," Brendan used "takes on roles," I think we get that one basically.

Brendan: I think so.

Teacher: I totally agree. You're very right and the others who saw that. That's excellent. Brendan?

Don: Also I think we kind of got the "imagining" down.

Brendan: Actually the imagining's ...

Teacher: What were the things that you heard us say, that you felt we were right on track with them?

Don: Well, the dreams ...

Teacher: Mm hmm.

Don: ... the creating and transforming mental images ...

Teacher: We even used those terminologies before, right, the mental images, the mental pictures. Any others?

Brendan: I think we *didn't* get "monitoring" because that's (reading from the Observation/Profile Sheet) "plans, adapts, facilitates" and we have more the ... empathizing sort of monitoring and the "monitoring" monitoring (i.e., monitoring by electronic surveillance devices), we have very little about "plans," I don't think we discussed that in much detail.

The students compare their understanding of the processes with the descriptions on the Observation/Profile Sheet

After the students had discussed their own ideas about the six processes, the teacher gave them the Observation/Profile Sheet on page 38 of this handbook. She asked the students to compare their perceptions with the descriptions of the processes on the Observation/Profile Sheet. In the excerpt presented on page 72, the students are discussing the descriptions of **empathizing**, **imagining**, and **monitoring**.

Previous excerpts from the students' discussion of **imagining** verify Don's assessment that the group had "got the 'imagining' down" (line 6). Their discussion of **empathizing**, which we have not presented here, would support Cal's view that they "got that one dead on the pin," (line 1) too. And other portions of the transcript reveal that Brendan is also correct in his contention that they "didn't get 'monitoring'" (line 13).

Students and teachers tend to view monitoring as the teacher's job

The students' discussion of the process of **monitoring** focused in part on external, mechanical forms of surveillance, as Brendan suggests. As well, Cal had described at some length how a teacher monitors students' actions and responses during the course of a lesson, adjusting her approach so as to maintain the students' engagement in the learning situation. None of the students mentioned their responsibility for monitoring their own language, thought, and actions. This is not to say that they were incapable of such monitoring; indeed, our analysis of only part of their discussion provides ample evidence of their ability to use this process.

When we ask teachers in a workshop setting to discuss their understanding of the six processes, they generally assume that the other five processes will be displayed by students. However, when they consider **monitoring**, almost always someone asks, "Is it the student who is doing the monitoring?"

It seems that many teachers and students see monitoring as primarily the responsibility of the teacher. Discussing the meaning of the

Teacher: What would a profile like this be used for? What kind of value would this information be to me or to yourselves?

Don: Well, you could tell other teachers how good he's (i.e., one of her students) doing his work.

Teacher: So you see it as something to share with new teachers who are getting the student? Okay.

Don: And also if you don't really know how he acts, you can put that (i.e., your observations of his learning and communication processes) down on paper, then you can actually see what he's like.

5 *Teacher:* What about your personal use? Andrew.

Andrew: It'll show you where your strengths and weaknesses are in some areas. And it'll also show you how often you use, and barely show, any one of the six processes.

Don: You'd see how other people look at you and how they think of you, so you could change your ways.

processes may help both to recognize the importance of transferring some of the responsibility to the students in the interest of helping them become independent learners, capable of regulating their own language, thought, and action.

Constructing the meaning of the processes together builds a shared feeling of trust and confidence among students

In this final excerpt from the discussion, the teacher asks the students to think about the value of having a profile of their learning and communication processes.

The discussion seems to have created an atmosphere of trust between the teacher and the students. They trust their teacher to gather information about their learning and communication processes that will identify their strengths as well those areas where they need to improve. And they are optimistic that this collaborative effort to gather and share information about their learning and communication processes will help them improve their achievement.

This kind of discussion with students serves several purposes. It validates what the students already know about the six learning and communication processes. It also provides a forum for extending and refining their understanding of the processes. As well, it creates a basis upon which they can begin to assess their individual levels of independence and set goals for their further growth. Moreover, the discussion can reveal the students' present level of independence in some of the processes in an oral communication situation.

A Different Approach: Conferencing with Students After Observing Their Learning and Communication Processes

Small group conferencing to prepare students for self-evaluation

One teacher, who has used ESLCP for several years in his social studies classes, prepared his students to evaluate their own learning and communication processes by conferencing with the five students he observed and evaluated during a grade nine unit of study. Because he had been gathering information about the students over an extended period of time, he could cite specific instances where they had demonstrated strengths in the key indicators of the six processes.

An example from a Grade 9 Social Studies class

The teacher videotaped the conference, which occurred towards the end of a grade nine social studies unit. (The unit, Soviet Leadership and Economic Growth, can be found in *Handbook 3, Diagnostic Teaching Units: Social Studies.*) A selection of excerpts from his discussion with the students shows his instructional approaches in action.

Instructional techniques in small group conferencing: modelling the processes, eliciting the processes, pointing out students' strengths, and identifying successful strategies and actions

In addition to providing positive feedback to the students about their strengths, the teacher used several other instructional techniques to help the students understand the key indicators of each process. (Refer to Self-Evaluation Profile Sheet on page 44 of this handbook.) As he talked with the students, he frequently modelled the key indicators and processes for them. As well, he often guided the discussion so as to elicit the processes he was asking the students to discuss and then pointed out how their responses illustrated these processes. He also drew attention to the strengths the students had demonstrated and encouraged them to identify the specific strategies and actions that had contributed to their success. Overall, he used the small group conference to help students become more conscious of their learning and communication processes and more capable of controlling them in future learning situations.

Teacher: Narrating, I'll ask Allan, what does it mean to narrate? What's it mean in language arts when you have a narrator for a play?

Allan: Like a story, it tells about what's happening, the people's feelings.

Teacher: The narrator in a play can tell the people's feelings, a narrator in a play fills in the gaps in between, he tells the story, he organizes the story for us. Same thing here. When you narrate, you take the information you've got and try and relate it, try and fill in the blanks, try and help somebody else understand your position, your point of view. Who researched Stalin? (To Allan, who did this research.) When you researched Stalin, who told the group the things about Stalin?

Allan: I did.

Teacher: Okay, collectivization, when you tried to explain collectivization to Brad, you were narrating. How good a job did you do? Did he understand?

Allan: Well no, I just told him, I just, I don't know (inaudible) ...

Brad: I read his sheets.

Allan: I just said that's the way it is and that's what we're putting.

Teacher: To Brad. So in his written work, how was his narrating?

Brad: It was pretty good.

Teacher: You understood it?

Brad: Yes.

Teacher: So he was able to organize it in writing. One of the interesting things (referring to the key indicators for narrating on the self-evaluation form), it says "uses anecdotes, I use anecdotes or stories to share experiences that are related to what I'm learning." How many of you tell stories? Or like to tell, you know, "I heard a story about ..."?

Chris: Well, I like to say, "This is kind of like what this happened, when this happened," and something that they can relate with.

Teacher: Chris, you studied the Ukrainian famine a lot, so how, today, let's say, can you tell us what's the similarities between the Ukrainian famine and Lithuania?

Chris: Well, in Lithuania they're cutting off all their food and they're keeping all their gas and they're taking everything from them so that they just starve them out.

Allan: Yeah.

Chris: So eventually, the Lithuanians will have to either give in or Moscow's gonna ... it was the same way with the famine in the Ukraine. They had to give just so much every day, and every day it was more; otherwise they'd lose their farms.

Teacher: See Chris, you've explored and narrated, you explored by bringing in your past information from your readings on the Ukrainian famine and tied it into the Lithuanian. And we can do the same thing in English (i.e., English language arts). If we're reading a story in language arts, "How Much Land Does a Man Require" — 'member that story, that we read about the (inaudible) ...

Allan: Oh yeah, where he gets to walk around (inaudible) ...

Teacher: (inaudible) and he wants land. And we could tie that in if we were doing some research on farm settlement in Alberta, so it's the same kind of thing.

The teacher and the students discuss narrating

In the first excerpt, shown at the left, the teacher and students begin to talk about **narrating**. The teacher draws upon the students' previous experience in English language arts to help them connect the new information about their learning and communication processes in social studies with things they already know and understand. He shows

Modelling the process of narrating

them how to use **narrating** to create connections between their experiences in English language arts and social studies. Because they have read the short story to which the teacher refers (lines 19–21), his references make sense to the students even though they may not be entirely clear to us.

Modelling the process of empathizing, focusing on students' strengths

The teacher displays empathy towards Allan, whose need for assistance in **empathizing** is apparent in the rather impatient approach he recalls having taken (line 8) when Brad did not understand his explanation of collectivization. (The teacher's profile for Allan also indicated a need for assistance in empathizing.) Rather than draw attention to Allan's lack of empathy in that situation, the teacher emphasizes the strength in **narrating** and **empathizing** that he displayed in the organization of his written explanation of collectivization. Later, in a conference with Allan, the teacher might encourage him to apply these strengths in his written work to other situations.

Eliciting the processes of exploring and narrating

The teacher elicits the processes he wants the students to understand. He asks Chris to compare what he's learned about the Ukrainian famine with the then current situation in Lithuania. He invites Chris to engage in **exploring** and **narrating** so that the students can see how these processes operate in their learning. Although the focus of the discussion is on narrating, the teacher shows the students that this process does not occur in isolation from the othes.

Teacher: The last category here (referring to the process of abstracting and quoting from the self-evaluation form) —"I use symbolism to understand and represent ideas." What are symbols?

Allan: Something that stands for something.

Teacher: Excellent. What's a symbol for freedom?

Brad: Dove.

Allan: A dove.

Teacher: What would be a symbol for Stalin?

Brad: An axe.

Allan: A crow.

Teacher: (Affirming and expressing interest in their choices.) An axe? A crow? Why a crow?

Chris: Yeah.

Allan: Because everyone thinks they're kinda bad, they go around and eat animals ...

Chris: 'Cause it's black.

Allan: They're scavengers.

Teacher: Did you jump to a bird because we went from freedom and dove to crow and back? Interesting. (To Dave.) If I say "Stalin" to you, what's a symbol of Stalin?

Dave: An axe.

Teacher: An axe, why an axe?

Dave: Well, that's what I thought because ...

Brad: Because of all the slaughtering he did of people.

Dave: That's the first thing I thought.

Allan: Yeah, but a crow is like that, they like when things get killed, 'cause that's how they live ...

Teacher: They eat off of dead ...

Allan: Off dead things.

Teacher: They feed off the dead.

Chris: I get the idea, 'cause they're black, it's the black, and we symbolize black and bad things, it's always been, like they have cowboys in black hats ...

Teacher: So if we were gonna tie this symbol, if I asked you to put together a collage of symbols for Stalin without his name anywhere on it — although a name is a symbol, too—but you could take a crow, an axe, a knife, a gun, starving people.

Chris: Yeah.

Brad: Wheat.

Teacher: (Affirming Brad's suggestion.) Wheat.

Allan: With an "X" through it or something.

Teacher: Okay.

Brad: Snake.

Allan: Yeah, he was a snake (inaudible).

Teacher: (Confirming their suggestions and their understanding of symbolism). Okay, these are all symbols for Stalin. So you look at that (i.e. the last key indicator for abstracting on the self-evaluation form) and say "Yeah, okay, I've got the idea there."

The teacher and the students discuss abstracting: using symbolism to understand and represent ideas

In this excerpt, the teacher is helping the students understand the process of **abstracting**. He began by asking the students to suggest five words that would sum up the character of Stalin and pointed out that the words they suggested were indicative of their strength in abstracting. Here, he repeats this technique, eliciting another key indicator of abstracting: the use of symbolism.

Eliciting the processes and participating in the learning

At this point in the discussion, the videotape captures an excitement that is difficult to convey adequately in a transcript of the words. The teacher takes on a different kind of role in this part of the discussion. Although he is still facilitating the students' contributions, he becomes a participant along with them in the construction of meaning (lines 14, 21, 23, and 25) as they examine the symbols that could represent Stalin. Although the prime concern is with the process of abstracting, in the space of a few minutes, the teacher and the students work collaboratively through all the processes, progressively extending and refining their ideas about symbolism in general, and about how Stalin could be symbolized in particular. The teacher's summation (Yeah, okay, I've got the idea there) seems to be an expression of triumph not unlike Chris's exclamation at line 24 (I get the idea).

The teacher and the students discuss monitoring

In their examination of **monitoring**, the teacher complimented the group, telling them that in his estimation, their strength in monitoring set them apart from other groups. He asked them to recall how they had displayed this strength in their work. They remembered using the following strategies:

- They had a group leader who assigned specific tasks to group members.
- They got down to work quickly during the first class period provided for the work.
- They broke their individual tasks down into daily assignments that were to be completed for the following class period.
- They adapted this strategy, increasing their productivity when it became apparent that they could accomplish more than they had originally thought possible in one class period.

The learning outcomes of small group conferencing

These excerpts from a discussion that took about fifteen minutes illustrate how you can use conferencing with a small group to accomplish significant learning in a very brief space of time. By modelling the processes for the students, eliciting the processes in their discussion, pointing out their strengths, and encouraging them to identify strategies they have used successfully, you can help them gain a better understanding of their learning and communication processes. This will give them a more informed basis for self-evaluation of their levels of independence in the processes. And their enhanced awareness of their strengths in these processes will help them become more capable of controlling and using the processes effectively to improve their achievement.

The conference also provided an opportunity for the teacher to extend the students' learning of important concepts related to the social studies unit they had them studying. The benefits of small group conferencing to students' learning can outweigh the time devoted to it.

Individual conferencing to review students' self-evaluations and set goals for improvement

Following a small group conference, you will want to meet with the students individually to discuss their self-evaluations and to show them your profile of their levels of independence. Teachers using ESLCP who have involved students in self-evaluation report that, in most cases, the students' evaluations were consistent with the profiles the teachers had constructed for them. However, if your evaluations are quite different, this can still open the door to a productive discussion of the reasons for the differences.

An important focus of this individual conference will be the student's goals for improvement. Your students will be more committed to improving if they have had a share in setting the goals. And you may find that they have some very useful suggestions for working together with you to accomplish their goals. In the next section, we will examine samples of students' self-evaluations of their learning and communication processes.

Samples of Students' Self-Evaluation

Self-evaluations of junior and senior high school students show two different ways of engaging students in self-evaluation

In this section we will examine the self-evaluations of two students, one in junior high school and another in senior high school. Their self-evaluations illustrate two different ways of involving students in evaluation of their own learning and communication processes.

Brendan uses the forms provided to create a profile and a summary of his learning and communication processes

Brendan, a student in a junior high school Humanities class for gifted, learning disabled students, was introduced to you earlier in the transcripts on pages 66 to 74. His teacher asked him to complete the Self-Evaluation Profile sheet (Form 2) and the Summary of Strengths and Goals for Improvement found on pages 45 to 47.

Tara writes about her learning and communication processes in a journal and a composition

Tara was a student in an English 30 class, working with a teacher who had also taught her in grades ten and eleven. The teacher had been using ESLCP in her classes throughout that period. Instead of using the Self-Evaluation Profile Sheets, she asked the students to write about their learning and communication processes in a journal, which they kept over the school year, and also in a composition about themselves as learners.

Brendan's Self-Evaluation

Brendan evaluates his learning and communication processes over an extended period of time

In the discussion analysed on pages 66 to 74, we saw some evidence of independence in Brendan's use of **exploring**, **imagining**, **empathizing**, **abstracting**, and **monitoring**. In his self-evaluation, Brendan is looking more broadly at his level of independence in the six processes, taking into account his performance in a variety of learning situations.

Brendan's comments show a high level of self-awareness about his learning and communication processes

Brendan's teacher wrote down the comments he made as he completed his self-evaluation. These have been included on the Self-Evaluation Profile Sheet, along with his assessment of how frequently he used the key indicators of each process. His comments about his abilities are candid and insightful, and indicative of a high level of trust established between Brendan and his teacher. (For two key indicators, one under exploring and another under abstracting, there are no evaluations. We do not know if Brendan was unable to evaluate his performance in these key indicators or if this was simply an oversight.)

SELF-EVALUATION PROFILE SHEET (FORM 2): HOW AM I DOING?

DATE: *May, 1992* **NAME:** *Brendan* **SELF-EVALUATION#:** *4*

Rating Scale:	Almost Always	More than Half of the Time	Less than Half of the Time	Almost Never
EXPLORING				
When I encounter new ideas, I try to recall what I already know, feel, and believe about the topic.			✔ *When pointed in the right direction, if clues are given, so well, that's not on my own, aye?*	
I ask questions about new ideas and search for additional information.	*Not evaluated*			
I connect new ideas with what I already know, feel, and believe.		✔		
I take calculated risks in order to find out what I understand and what I can accomplish.	✔ *Not sure they're calculated; they just come to me; I jump right in, sometimes head first, other times, feet first.*			
NARRATING				
I use time and space to organize experiences and information.			✔	
I connect experiences within and across different subjects to help me understand new ideas.			✔	
I use anecdotes (stories) to share experiences that are related to what I am learning.		✔ *I jump around, though. People seem to get confused.*		
I value and enjoy sharing my experiences and hearing about those of others.		✔		
IMAGINING				
I use images and details that appeal to the senses to tell others what I mean or feel.	✔			
I imagine how images can be changed to make them clearer, more meaningful, or more appealing.	✔			
I imagine myself in different situations, places, or times.	✔			
I use figurative language, like metaphors and similes, to help myself and others understand ideas and feelings.	✔ *Especially when I'm role-playing; maybe I should use my role-playing experiences in my writing, aye?*			

Rating Scale:	Almost Always	More than Half of the Time	Less than Half of the Time	Almost Never
EMPATHIZING				
I listen carefully to others and encourage them to share their ideas with me.	✔			
I avoid making hasty judgments about people and ideas.	✔			
I select and use language that is appropriate for different audiences.			✔	
	I love to use big words, impressive language whether it's appropriate or not. It's the one area I know I'm better than many.			
I take on different roles to suit different situations and purposes.	✔			
ABSTRACTING				
I support my generalizations or theories.			✔	
	I usually think others can see the evidence, that it's a self-evident truth, that I'm wasting my time trying to explain or support my conlusions.			
I apply my generalizations by making reasonable predictions and by explaining my ideas clearly.		✔		
I evaluate my generalizations from different points of view.	*Not evaluated*			
I use symbols (words, mathematical and scientific notations, etc.) to understand and represent ideas.			✔	
MONITORING				
I set realistic goals for learning and communicating with others.			✔	
	I think I do, but you and my parents don't usually think so.			
I plan strategies that will help me meet my goals.				✔
	Oh, oh—not unless told to. I have real difficulty planning my life.			
I check how successfully I am meeting my goals and adjust my goals and strategies when necessary.				✔
I keep interested in my work and can overcome difficulties I encounter.				✔
	I usually plan to ... guess it's more like want to, but somehow I turn around and the due date is beating down my door			

SUMMARY OF STRENGTHS AND GOALS FOR IMPROVEMENT

The processes I see as my strengths are:

exploring ☐	imagining ☑	abstracting ☐
narrating ☐	empathizing ☑	monitoring ☐

The processes I would like to improve upon the most are:

exploring ☐	imagining ☐	abstracting ☐
narrating ☑	empathizing ☐	monitoring ☑

especially organizing my work *especially completing assignments*

In order to improve in these areas, I would like to try:

- *follow through on plans—oops, guess I'd have to first make the plans*
- *use strategies I've been taught*

My teachers can help me by:

- *continuing to teach me strategies for the processes*
- *continuing to demand that I do some of that metacognitive stuff you talk about so much. I'm still weak but greatly improved to when I first arrived on the scene.*

Brendan believes he is most independent in imagining and empathizing, and needs help most in monitoring on a long-term basis

Brendan's self-evaluation shows that he believes he is most independent in **imagining** and **empathizing**, and that he needs assistance most in **monitoring**, and to a lesser degree, in **narrating** and **abstracting**. In his Summary of Strengths and Goals for Improvement, he selects **monitoring** and **narrating** as the processes he would most like to improve upon. Although we saw him demonstrating some independence in monitoring in a discussion situation, Brendan recognizes that he needs to improve his ability to set long-term goals, plan strategies to accomplish them, adjust his strategies when necessary, and persevere with a task.

Brendan wants to take responsibility for monitoring his work but needs help to identify and learn strategies that will enable him to do so

Brendan realizes that to become more independent in these aspects of **monitoring**, he needs to take responsibility for planning his work and using the strategies he has already been taught. He does not specify the strategies that he thinks are applicable to monitoring. One of the first things his teacher might do is ask him to describe more specifically the strategies he could use to improve his monitoring abilities. Perhaps Brendan could also investigate the devices that adults use to monitor their work (calendars, plan books, daytimers, action plans, etc.) and design a system of his own to suit his work situation. He might create something that could benefit other students, too.

Brendan does not spell out what he might do to improve his abilities in **narrating**. This could be probed further with him. To develop greater independence in the process, Brendan might keep a journal, recording what he has learned and searching out the connections among what he has learned in different subject areas. He could be challenged to apply his skill in imagining to the creation of metaphors that would represent these connections.

Self-evaluation acknowledges students' strengths and challenges them to achieve greater independence in other areas

Self-evaluation, conducted in the context of a trust relationship between teacher and student, can have a powerful influence on students' learning. Brendan's self-evaluation showed him that he had strengths in some of the processes. It encouraged him to be optimistic about the prospects for improving his abilities in other processes. And it challenged him to assume some responsibility for his learning.

Tara's Self-Evaluations: Using Writing as the Medium

Tara's development as a learner and communicator exemplifies the possibilities for growth towards independence when ESLCP is used on a long-term basis

The student work presented in this section will show how writing can be used by students to reflect upon their developing independence as learners and communicators. Tara worked with the same English Language Arts teacher for the three years that she was in high school. As a grade twelve student, she seems to be very comfortable using writing to discover, extend and refine her thoughts and feelings. There is a strong sense of personal engagement in her writing.

The reflective composition

At the beginning of grade twelve, the students in this class were asked to write a reflective piece about themselves as learners. This piece of writing was revised several times throughout the year to reflect the changes they saw in themselves as learners. At the end of the year, it was submitted as one of their culminating assignments.

The journal

Throughout the year, the students also kept a journal. They wrote daily, often in response to a thought-provoking idea or suggestion their teacher had written on the chalkboard. Sometimes these focused on one of the six learning and communication processes of ESLCP:

- *When I think of* ***exploring*** . . .
- *The more I* ***imagine****, the more I learn.*

Sometimes they focused on other aspects of learning:

- *Working with others makes learning easier and more interesting.*
- *I learn to write and I write to learn*
- *The more we learn, the less we know.*
- *Risk-taking is an important part of learning.*

We will examine two of Tara's journal entries, one about imagining and another about working with others.

Tara's journal entry about imagining (Grade 12, early September):

The more I imagine, the more I learn. It's like a cycle because you get caught in the narration then your imagination takes off and you begin exploring—which I believe increases your learning a lot! If you don't use your imagination then when you read a novel, or a piece of literature you will never get anything out of it for yourself. There's no personal benefit in it at all—so what's the use in reading it in the first place? If your imagination can't lead you to new places then you're missing half the joys of reading.

However, imagination applies to everything not just english. Because of my imagination, I am learning all the time. I love to imagine because I feel as though it expands my mind and takes me to new places. It makes the world feel like a bigger place than it is. I love the feeling I get from imagining ... for once I don't feel limited or restricted.

Tara's journal entry about imagining shows her strength in abstracting and her excitement about learning

In her journal entry about **imagining**, on page 92, Tara shows a growing independence in **abstracting** as she makes some tentative generalizations about the process of imagining. Her explanation of the interaction of narration, imagination, and exploring shows that she understands the recursive operation of the processes: narration acts as a spur to imagination, which may, in turn, bring a learner back to higher levels of exploring. She discusses the importance of imagination to the reader's participation in the vicarious experience offered by literature. But she also recognizes that imagination plays an essential role in her learning in other contexts; it helps her see new possibilities not tied to the here and now. Tara's writing about the connection between imagining and learning coveys a feeling of joy in the potential she sees for her own learning.

Tara's journal entry about working with others (Grade 12, late September):

.. . . Working with a group makes learning something that I can actually get excited about. Everybody always has a different idea or viewpoint than myself and it is so interesting exploring them all because every person is "labelled" differently in English class (i.e. , Tara the explorer, Nathan the empathizer, Kevin the abstracter etc. etc.) With all of the elements together—you can do anything, write anything, read anything.

Another thing about having a group is that they are great criticizers because normally it is hard to truly critize your own work. They are like editors—telling you when you're done, what you're missing etc. That's why I do not like my group this year. I feel as though Margot, Cindy, Jennifer and I are the pieces of a puzzle, yet none of use fit together. Except Cindy and I. I really miss Nathan and Kevin. They were such a valuable part of our group now we're missing those aspects. They are also boys. (As if you hadn't noticed though, right?!) But seriously, you need male input into the group. Men think a lot different than women and Kevin and Nathan's thoughts were something that can't be replaced—especially by two girls.

Tara's journal entry about working in groups displays further evidence of independence in abstracting and a mature understanding of the importance of working effectively with others

Tara's comments about working in a group, on page 94, have a special significance because she and three other students referred to in her journal entry (Nathan, Kevin, and Cindy) had worked together as a group throughout grades ten and eleven in this English Language Arts class. By Grade Eleven, they had become such a cohesive group that they worked and studied together in other subject areas, even though they were not in the same classes. In Grade Twelve however, Nathan and Kevin were no longer in the same English class. This entry was written early in Grade Twelve, and it is clear that Tara is grieving over the loss of the group.

At the same time, though, Tara's reflection on the importance of working with others reveals a very mature perspective. The group presents her with viewpoints different from her own, which enhance her learning. As well, the group members bring to the task complementary strengths in learning and communication processes that give the group a special potency; together, they can take their learning further than any of them could on their own. They also help one another view their own work more objectively so that they can improve its quality. Tara notes, too, the importance of having both male and female perspectives in a learning situation.

Although Tara sees herself as the group's **explorer**, this journal entry displays considerable independence in **abstracting**, too. It is clear that Tara has learned some important things about working in a group that will help her participate effectively in the adult world of work, where this is a requirement. (And as the school year progressed, she became quite comfortable working with a new group of students.)

An excerpt from Tara's composition about learning (Grade 12, June)

Learning, for me, paints a very clear picture. It didn't use to but now I know pretty well what I like and dislike. The unfortunate part of it all is that I have to learn what I dislike also. However, I take it with a grain of salt because I know that it's for my own advantage. What I really love, though, is English and Literature because there I can be a fairly free thinker and the restrictions of society don't feel quite as constrictive as usual. I can lose myself in novel or play or, better yet, in my own writing. It's my way of escaping and learning at the same time.

I find that I learn vast amounts of knowledge just by writing. Whether it be something or nothing, at least I always learn something about myself if not something about society, life and the world. A good example of this would be interactive notes. At first they seem like pages of useless information until finally you put them altogether and make connections you would never have thought of otherwise. Even things that you think are totally pointless sometimes end up meaning something important and useful. By writing, you can sort out details and confusion so much easier. And because it is on paper, you don't need to worry about forgetting.

Now that I have started writing, though, I will never be able to stop because the learning that I find most important would come to a halt.

Tara is leaving high school with confidence in her ability to direct the course of her learning in the future

The last excerpt, on page 96, is from the third draft of Tara's composition about herself as a learner. Already it is an extensive piece of writing, over four pages in length, single-spaced. Tara has labelled it "very rough" and included several directions to herself for further editing. This in itself indicates her independence as a learner and communicator —she is capable of **monitoring** the quality of her own work and making decisions about what needs to be done to improve it.

Tara expresses a strong sense of independence as a reader, writer, and learner. She enjoys the challenge of exploring new ideas. She understands that learning is a long, circuitous journey to a destination that is usually unknown at the outset. She is intrigued by this prospect and confident of her ability to use writing to make new experiences meaningful and significant for herself. Tara has taken control of her own learning.

Instructional Strategies and Learning Activities to Promote Growth in the Six Processes

The instructional strategies and learning activities in this section have been suggested by teachers. Some of the strategies and activities are intended to help students become more independent in the processes; others are designed to challenge students who are already demonstrating independence in the processes.

On pages 98 to 104, you will find suggestions for instructional strategies that could be used to promote growth in any of the six learning and communication processes, in many subject areas. On pages 104 to 117, you will find suggestions for learning activities to promote growth in each of the six processes. Many of these instructional activities could be used in more than one subject area.

In the Diagnostic Teaching Units (Handbooks 2, 3, and 4) there are further examples of instructional strategies and learning activities designed to help students' become more independent in learning and communication processes.

Instructional Strategies to Use with Any of the Processes

- After you have created individual profiles for each student in a class, write their names in the appropriate cells on the Group Profile on page 53 of this handbook. The resulting Group Profile will help you see at a glance those students who are demonstrating independence in the six learning and communication processes and those who need assistance. You can use this information to group students appropriately for learning activities. For example, you can group students so that

  —students who demonstrate independence in a process can model the appropriate

language and actions for other students who need assistance with that process

—students who need assistance with the same process can receive instruction and opportunity to practice the skills that will help them develop greater independence in that process

—students who are independent in a process that is essential to the success of a learning activity can be distributed among all the groups in the class

Two teachers who have used this approach in their classrooms describe how it works for them:

I find a Group Profile effective in tracking my students, individually and as a group. I can use the profile to group my students for various activities either homogeneously or heterogeneously. If my objective is to capitalize on areas of strength, then I put students who have the same relative strengths together. Sometimes I group students based on common areas where they need assistance. I can then work with these small groups, facilitating the development of their skills. At other times, I attempt to capitalize on the powerful effect that modelling can have on learning and teaching. Actually, organizing groups on the basis of the students' levels of independence in the six learning and communication processes of ESLCP, coupled with a knowledge of students' learning styles, works wonders; achievement becomes a reality.

I have found that tracking my students' learning and communication processes is invaluable in planning individual teaching strategies. What a bonus when I realized that the groups could be organized according to their strengths in these processes.

I happened upon this knowledge quite by accident, when I decided one day to put all of my "yakky" students into one group to see what they shared in their . . .

learning and communication processes. I found that they were all very independent in exploring and narrating. Further, they worked through these processes verbally, whether they were told to or not. I left them together to form their own group. The gains have been unbelievable. I then began to ask questions about the configurations of my other groups and analyzed them in terms of the six processes. I began to redesign the groupings in my classroom to accommodate the students' strengths and needs in the processes in relation to the assigned work. In this way, the groupings were such that the processes necessary to complete the task were represented in each group.

I know that if I am asking students to explore, I must be certain that each group has a very strong exploring person, someone who can return students to the question whenever they erroneously think they have found an answer. For the same reason, a strong imagining student is essential. This student will help the others find new ways of looking at the ideas discussed. The group will be less likely to assume that they are looking for an answer or that they have found one prematurely.

I now design all my groups from students' profile sheets. If a group in my classroom is unsuccessful, I know where to look. I decide where in the process learning is stalled, and include a student with strong skills in that area. That is often the only intervention necessary. The payoff, of course, is that students are more likely to make their own meanings, which we know is where actual learning occurs.

The ideal situation occurs when students understand their own learning and communication processes, can identify their own very important function in the group, and can eventually choose their own cooperative group based on this knowledge. Impossible? I would have suspected it to be; however, I have always been very explicit with my students about why the groups in our classroom are designed as they are. Students, to my surprise, began very quickly to ask me for particular groupings, citing the needs of the group in terms of their learning and communication processes. A ploy? Perhaps, but I can live with it because, you see, they were right.

- Provide models of independence in the processes by

  —demonstrating it in your own language and actions (For some examples, refer to the discussions on pages 77 to 82 of this handbook and also to "Modelling Thinking" in *Teaching Thinking: Enhancing Learning*, Alberta Education. 1990, page 16.)

  —pointing it out in the students' language and actions

  —publishing, in the classroom, school, and community, students' work that demonstrates independence

- Teach students how to pose questions that will challenge them to think and use language at increasingly higher levels of sophistication. When students answer a question, ask them to think of another question that could follow from their answer. You can find specific information about teaching students how to ask questions in these resources:

  "Asking Questions" in *Teaching Thinking: Enhancing Learning*, Alberta Education, 1990, pages 16 to 18.

  Measure of Questioning Skills and *Developing Student Questioning Skills*, both by Garnet Millar, published by Scholastic Testing Service Incorporated, 1193, 480 Meyer Road, Bensenville, Illinois, USA, 60106 - 1617 (telephone: 1-800-642-6STS)

- Examine the next unit of work you plan to teach. Do the learning activities of the unit enable students to use the six learning and communication processes to extend and refine their understanding of new ideas and language?

- Ask students to identify the processes that they think will be most important to the success of an upcoming learning activity. Then ask them to give examples of how they will show that they are using those processes. After the activity, ask them to cite specific examples of language and actions that demonstrated their use of the processes.

- If students seem to be demonstrating more independence in the processes in their small group discussions than in their writing, audiotape their discussions. After they have drafted a related piece of writing, ask them to listen to the audiotape of their discussion, compare what they said in the discussion with what they wrote, and make the necessary changes in their draft to incorporate the ideas brought forward in their discussion.

- To help students monitor their progress towards greater independence, make a chart showing their names down the left-hand side and the key indicators of the processes along the top. Use check marks of two different colors to indicate when the student demonstrated the key indicator independently and when the student did so with assistance. Encourage the students to participate in keeping this record of their use of the processes.

- Instead of asking students to write a paragraph or an essay, create an assignment with a real-life or imaginary writing role, audience, format, and purpose. This helps students develop the capacity to empathize with others. It also helps them learn how to adapt their language to different audiences and purposes. (There are many examples of this kind of assignment in the instructional activities described for each process on pages 104 to 117, and also in the learning activities of the Diagnostic Teaching Units.) Ask the students to

participate in designing appropriate assignments of this kind.

- Encourage students to use different forms of representation (e.g., posters, videotapes, models, songs, dances, role-playing) to communicate what they have learned.

- Provide opportunities for students to use journal writing (or learning logs) as a medium to explore, refine, and extend their understanding of new ideas and language. (In the instructional activities described for each process on pages 104 to 117, you will find specific examples of how journals can be used to promote growth in the six processes. You will find further examples in the learning activities of the Diagnostic Teaching Units.) If students are reluctant to write, ask them to do an oral journal at the end of a discussion or lesson.

- Withhold summative evaluation in favor of peer and teacher response to students' work, especially during the early learning activities of a unit.

  —Provide feedback through written comments and through conferencing with students. (Conferences can be formal or informal, individual or group, specific to an activity or general. You can use them to encourage students who are reticent in a large group to display their level of independence in the processes, to probe students' responses for progressively higher levels of language use, to confirm observations you have made of their learning and communication processes in other situations, etc.)

  —Identify examples of the key indicators of the six learning processes in the students' work. Point out evidence of independence as well as areas where they need to improve.

—Ask questions and pose alternative points of view for consideration.

—Encourage students to redo an assignment in order to practice using the processes more effectively.

Learning Activities for Each of the Six Processes

This section presents learning activities developed by teachers for each of the six processes of ESLCP. To help you remember what each process entails, we have reproduced its descriptors from the Observation/Profile Sheet and its key indicators from the Descriptive Scales. These appear above the suggested learning activities for that process.

Because the processes operate in an interactive fashion, it is difficult to devise a learning activity that will involve students in only one of the processes. Therefore, you will find that while the prime focus is on one of the six processes, many of the activities will engage the students in other processes, too.

Some activities can be used to help students gain more independence in their use of the processes

The suggested learning activities have been organized in clusters under each process. The first cluster includes activities that should enable students to draw readily upon their own experiences. These will probably be easiest for them to do. Therefore, the activities in the first cluster might be a good starting point to use with students who need varying degrees of assistance to demonstrate the process.

Some activities can be used to challenge students who display some independence in the processes

The second cluster under each process includes activities that may be further removed from the students' immediate experiences. These will probably be more difficult for them to do. Therefore, the activities in these clusters could be used to challenge students who are demonstrating some degree of independence in the process.

These learning activities will be most helpful

to students if they can be integrated within a unit of work rather than presented as isolated exercises for them to do, without a meaningful context.

Learning Activities for Exploring

Exploring
(discovering personal knowledge and making new connections)

remembers, asks, guesses, "tinkers," "digs," researches, manipulates, experiments

Key Indicators			
becomes aware of prior knowledge, feelings, and values	**frames questions; searches for additional information**	**connects new with prior knowledge, feelings, and values**	**takes calculated risks where appropriate**

To help students become more independent in exploring, design learning activities that will involve them in

- previewing a chapter in a textbook before reading it to find out what it's about and to establish a purpose for reading
- identifying objects in a "mystery bag" without looking inside
- brainstorming ideas for writing, suggestions for projects, questions to be answered, problems to be solved, etc.
- recalling what they already know about a subject (e.g., One student tells everything he or she knows. After two or three minutes, the next student continues, adding to the account without repeating any of the first student's information.)
- discussing how to portray a character in a role-playing situation
- constructing spider grams (also called "webs," concept maps, etc.)
- playing guessing games (e.g., When I go to the moon, I'm taking . . . The object named must begin with the first letter of the student's name. Only the first student knows the rule. Others must guess.)
- carrying out investigations to answer questions
- locating reference materials on a topic
- using newspapers and visiting stores to make price comparisons
- dissecting activities in sciences
- creating musical instruments out of everyday objects

To challenge students who are demonstrating some independence in exploring, design learning activities that will involve them in

- simulating a real situation (e.g., a flea market, a revolution)
- creating acronyms, songs, humorous sayings, etc., to assist in remembering ideas
- experimenting with the language of a particular subject area, trying it out, and playing with it in different contexts (e.g., writing a rap song to describe metabolism or synapse transfer)
- designing quizzes on a topic
- deciding how to teach a concept or a skill to another student or group
- experimenting to solve problems (e.g., Given a cutout of a long-eared rabbit and two paper clips, figure out how to increase and decrease the speed when the rabbit is dropped from a height of two metres.)
- conducting a market survey to answer the question, "What product can I sell to make money?"
- product testing in science
- conducting surveys and interviews
- conducting a risk/benefit study
- carrying out experiments to test an hypothesis

For further suggestions, see "Brainstorming" in Teaching Thinking, Enhancing Learning, *Alberta Education, 1990, pages 47 to 48.*

Learning Activities for Narrating

Narrating
(telling about experiences in order to organize them and to understand their significance)

selects, recounts, orders, reports, shares

Key Indicators			
uses time and space to organize remembered experience and information	**relates experience within and across subjects to clarify concepts**	**uses anecdotes in sharing experience**	**values and enjoys sharing experience, real and vicarious**

To help students become more independent in narrating, design learning activities that will involve them in

- recalling personal experiences related to a topic, to a story, etc.
- writing a progressive story (i.e., each student starts a story, then passes it on to be continued by another)
- relaying instructions to another student or group
- recalling the most interesting or important part of a book, film, speech, etc.
- taking turns to recall the important details or events in a reading passage
- organizing instructions or paragraphs that have been presented in random order
- constructing a mind map, web, outline, time-line, chart, etc. to capture important ideas, events, processes, etc.
- audiotaping observations while conducting an experiment
- reporting on behalf of the group to rest of class after group work has been completed
- using slides to assist reporting or recalling events and information
- answering the question "What did you learn?"
- writing in a journal, diary, or learning log about the lesson as a concluding activity for classes
- writing entries for a class journal, summarizing what was done and learned that day, writing about significant moments or accomplishments of individuals or of the class that day
- telling an alien about any aspect of life on Earth

To challenge students who are demonstrating some independence in narrating, design learning activities that will involve them in

- writing and performing a skit, play, radio play, etc.
- designing story boards and comic strips
- writing newspaper articles about characters and events from literature, or about people and events from history, current events, and science
- creating a story to connect an object, a type of person, and a location (e.g., truck driver, a stuffed owl, and a cemetary)
- telling about events in the role of a character or person who participated in them
- telling about a chemical reaction or other scientific process in the role of a chemical or inanimate object affected by the process
- preparing a dramatic reading of a poem, story, play, etc.
- teaching a skill or a process to someone else
- constructing a family tree and telling about the experiences of family members, comparing those of different generations
- writing ballads or songs about characters from literature, or about historical or contemporary figures, scientific discoveries, etc.
- writing journal entries for a literary character, or an historical or contemporary public figure
- writing and presenting a parody of a story, event, or process
- rewriting a story set in the past, using a contemporary setting
- writing a stream-of-consciousness narrative for a character from literature, or an historical or contemporary figure

Learning Activities for Imagining

Imagining
(creating and transforming mental images)

compares, describes, visualizes, "dreams," uses metaphor, translates ideas into another medium, envisages a successful performance

Key Indicators			
creates images and conveys associated feelings	**transforms images**	**imagines self in different situations, places, or times**	**uses figurative language**

To help students become more independent in imagining, design learning activities that will involve them in

- observing and describing unfamiliar objects, using all of the senses
- "power writing" for two or three minutes, describing whatever images, ideas, or associations come to mind
- drawing a picture to represent an idea
- describing the events, feelings, and images conveyed in a picture
- finding pictures for other students to write about
- describing the "movie in your mind" that "plays" during reading and examining it for images, feelings, and figurative language
- role-playing a character or person in a different situation, or from a different place or time period
- opening a coconut without any tools, figuring out how to save the milk, and devising a use for every fragment of the coconut
- choosing actors to play the roles of characters from literature, history, current events, etc.
- writing a story suggested by a piece of music
- designing a bulletin board display for a unit
- writing about an object using senses not normally associated with that object (e.g., describing what a lemon feels like, sounds like, looks like)

- writing about the experiences of a person in different circumstances (e.g., a Russian in a breadline, native Canadian living on a reservation, etc.)
- designing an ideal bedroom, a city of the future, etc.

To challenge students who are demonstrating some independence in imagining, design learning activities that will involve them in

- acting out an idea or process
- creating a creature that could exist in an unusual or imagined environment
- writing a scenario for an imagined situation—a threatening situation, an unexpected windfall, an act of heroism, etc.
- creating a "shooting" script for a literary selection, focusing on feelings and images the viewer may experience
- observing and describing the feelings of an organism seen under a microscope
- writing a story about themselves as an adult, an elderly person, etc., focusing on their successes
- designing a promotional poster or advertisement for school events or programs
- creating muppet characters to act out stories, portray contemporary figures, etc.
- interviewing a character from literature, or an historical or contemporary figure, etc.
- creating a travelogue for an imagined character, an historical figure, an organism, etc.
- creating an alternative ending for a story, historical event, or contemporary issue
- creating and marketing a product
- writing a play about an important historical event or scientific discovery
- drawing caricatures or cartoons to illustrate characters, people, or ideas
- designing a board game to help others understand a literary work, social issue, historical period, scientific concept or process
- creating a readers' theatre presentation
- preparing a video or slide show to tell a story, illustrate a process, or explain an issue, and important event, or a discovery
- participating in a dinner party conversation with people from another era, place, etc.

For further suggestions, see "Visualizing," (pages 48 to 50), "Elaborating," (pages 58 to 60), and "Communicating," (pages 68 to 70) in Teaching Thinking, Enhancing Learning, *Alberta Education, 1990.*

Learning Activities for Empathizing

Empathizing
(understanding the perspectives of others)

trusts, respects, accepts, encourages, paraphrases, takes on role, listens actively

Key Indicators			
shifts attention away from self while communicating	**reserves judgment and disbelief where appropriate**	**selects language that takes audience into account**	**takes on the role of another**

To help students become more independent in empathizing, design learning activities that will involve them in

- giving others time to think and answer questions, or make contributions to discussions (Girls in math and science need a longer "wait time")
- giving directions to others (e.g., One student gives directions to others who are trying to draw a design that they cannot see; they must depend entirely upon the directions they are receiving.)
- going on a "trust walk": one student leads another who is blindfolded; then they exchange roles.
- paraphrasing the contributions of another speaker in a discussion
- mirroring the body language (or actions) of a partner
- participating in progressive story-telling (listening and then picking up the story)
- writing an anonymous note to another student complementing him or her on some action, skill, or personal quality (e.g., not his or her appearance)
- coaching another student in any learning activity
- retelling or rewriting a story for another grade level
- writing about a conflict from the point of view of the person with whom they are in conflict (e.g., teacher, parent, classmate, friend), then sharing and discussing with that person
- building a structure together from common materials (e.g., paper, sugar cubes) to meet a given set of criteria
- taking precise measurements or readings in a science lab

- making careful records of observations in a science lab

To challenge students who are demonstrating some independence in empathizing, design learning activities that will involve them in

- taking on a role similar to that of a character from literature or an historical figure (e.g., for Hamlet: you are studying in Australia and receive a phone call informing you that your father has died. A short time after his funeral, your mother announces her intention to marry your Uncle Claude. What will you do? Dramatize or write a response.)
- writing a report and a poem on the same topic
- portraying characters through oral interpretations
- preparing both sides of a debate
- writing and illustrating original stories for younger children
- editing their own and others' written work
- identifying stereotypes
- taking appropriate safety precautions in the science lab
- retelling stories from a different point of view (e.g., the wolf in the "Three Little Pigs," Kurtz in "Heart of Darkness")
- playing simulation games (e.g., Marooned, NASA)
- investigating the literature, art, history, and accomplishments of different cultural or ethnic groups in order to understand similarities among human beings
- role-playing an interview with a character from literature or an historical figure whose views and actions were complex, unorthodox, unusual, abhorent, etc. (e.g., Macbeth, Adolf Hitler, Albert Einstein, Robert Oppenheimer, Galileo)
- role-playing the trial of a character from literature or an historical figure, such as some of those listed for the preceding activity
- writing a journal in the role of a character from literature or a person involved in historical or current events
- participating in the activities of another cultural or ethnic group (e.g., creating a work of art, cooking and eating special foods, dancing)
- proposing ways of resolving conflicts between individuals, groups, or nations
- role-playing people with different (or opposite) points of view in a real-life situation (e.g., pulp mill owner, environmentalist, and a town councillor)
- writing a report on a scientific experiment designed by the student so as to permit another student to replicate it

Learning Activities for Abstracting

Abstracting
(moving beyond concrete thought)

classifies, generalizes, hypothesizes, theorizes, symbolizes, evaluates, justifies, supports

Key Indicators			
supports generalizations	**applies generalizations**	**evaluates the soundness and significance of generalizations**	**uses symbols**

To help students become more independent in abstracting, design learning activities that will involve them in

- selecting a picture to represent an event or idea and explaining its relevance and appropriateness
- constructing retrieval charts to classify objects, ideas, characters, books, music, animals, plants, etc., and making generalizations about their similarities and differences
- describing the symbolic associations of colors
- suggesting words to describe different rhythms in poetry
- applying knowledge and skills learned in school to situations in the world outside of school, (e.g., applying knowledge of acids and bases to problems related to acid rain)
- predicting outcomes for information given in case studies, for lab investigations, for characters in literary work, etc.
- writing a character sketch
- writing a résumé for a character
- explaining the limitations of stereotypes
- proposing solutions for problems
- rewriting a story to show how the outcome could have been different
- explaining the reasons for choosing a particular response to a multiple-choice question

To challenge students who are demonstrating some independence in abstracting, design learning activities that will involve them in

- constructing an ideal house, culture, world, etc.
- creating an advertisement using appropriate advertising techniques and persuasive language; evaluating the effectiveness of each others' advertisements
- proposing and evaluating alternative courses of action for a character, a person faced with a dilemma, a government faced with competing interests, etc.
- planning a tour to various places within a province, country, or continent, and preparing materials to promote the tour with clients
- doing a drawing, in color, to interpret the mood in a piece of writing, and then describing the effect in words
- drawing a picture of a plant, describing its environment and the producers, first-order consumers, and second-order consumers that might exist on it
- designing an experiment to test an hypothesis
- constructing questions that must be answered to understand a literary work, event, issue, or idea; narrowing the questions to the most important, and then answering them in an oral presentation or written composition
- selecting or creating symbols to represent literary characters, historical figures, events, issues, or ideas
- asking and answering "What if . . . ?" questions
- comparing, contrasting, and evaluating the quality or soundness of two things (a book and a movie, competing theories, political systems, etc.)

For further suggestions, see "Categorizing," (pages 52 to 53), "Patterning," (pages 54 to 57), "Synthesizing," (pages 57 to 58), "Evaluating," (pages 60 to 62), "Decision Making," (pages 62 to 65), "Forecasting," (pages 65 to 67) in Teaching Thinking, Enhancing Learning, *Alberta Education, 1990.*

Learning Activities for Monitoring

Monitoring
(regulating thought, language, and action)

checks understanding, reconsiders, plans, decides, adapts, facilitates, persists

Key Indicators			
sets goals for learning and communication	**plans strategies for learning and communication**	**adjusts goals and strategies for learning and communication**	**facilitates learning and communication and perseveres**

To help students become more independent in monitoring, design learning activities that will involve them in

- setting realistic goals for learning
- seeking and examining exemplars (models) of high quality products related to their own goals
- identifying appropriate formats or modes for communicating related to purpose and audience
- establishing realistic time-lines for tasks
- recognizing the need for advance planning and making the necessary arrangements (e.g., for an interview, for equipment, for supplies)
- developing an action plan for accomplishing goals
- establishing a plan for checking on progress towards goals
- anticipating difficulties, frustrations, and setbacks, and planning how to deal with these calmly and effectively
- keeping track of things to do
- developing contingency plans in case things do not work out as expected
- checking results or findings with classmates
- recognizing when plans and strategies are not working out and developing alternatives or recognizing that help is needed to do this
- recognizing opportunities to extend learning and acting upon these
- maintaining written records (reading logs, journal entries, etc.) to track progress and learning

To challenge students who are demonstrating some independence in monitoring, design learning activities that will involve them in

- fulfilling responsibilities to group members
- encouraging others in a group project
- assisting others without taking over the task
- resolving conflicts with group members or recognizing the need to have a mediator assist in the process
- constructing quizzes on presentations made to the class to monitor the effectiveness of their presentation
- identifying relevant criteria for the evaluation of their work and applying these appropriately and accurately to their work
- participating in a steering committee for the class
- participating in parent-student-teacher conferences, showing and explaining progress and presenting goals for improvement and further learning
- preparing drafts, arranging to have a classmate and/or teacher edit the work, listening to the editor's suggestions, evaluating the suggestions in relation to goals for the work, and acting upon those that are consistent with goals or altering goals to accommodate useful suggestions
- describing and using appropriate strategies in a test situation (e.g., previewing the test, starting with something that will build confidence, previewing the stems of multiple-choice questions before reading the passages, predicting the correct completion of the stem of a multiple-choice question, re-reading or reviewing to check accuracy, etc.)

For further suggestions, see "Metacognition," (pages 41 to 45), "Remembering," (pages 50 to 51), "Goal Setting," (pages 51 to 52), "Planning," (pages 67 to 68), "Problem Solving," (pages 71 to 72) in Teaching Thinking, Enchancing Learning, *Alberta Education, 1990.*

Collaborating with Colleagues Across the Curriculum

A shared perspective on important learning and processes can encourage teachers to work collaboratively to help students become more independent in the processes

An important goal of this program is to create a shared perspective among teachers in different subject areas of the processes that are important to students' learning and language development across the curriculum. We hope that this shared perspective will help teachers transcend the boundaries of their traditional subject areas and work collaboratively to help students become more independent learners and communicators. We believe that both students and teachers can benefit from this collaborative endeavor.

Compare observations of students' learning and communication processes

You could begin to build this shared perspective by comparing your observations of the learning and communication processes of students that you teach in common, using videotapes and other samples of their work in your classes. At first, you may find that your observations and evaluations of the students' learning and communication processes are not exactly the same. It will take time to develop a shared understanding of how students demonstrate their learning and communication processes and of what constitutes independence among students at the grade levels you teach.

Complementary viewpoints help to build a more comprehensive view of students' learning and communication processes

Although these initial differences in viewpoints may be frustrating, they will help you develop a more sophisticated set of lenses through which to view students' learning and communication processes. For example, one teacher may be particularly attuned to students' body language and other nonverbal indicators of the six processes; another to the connotations of their language; yet another to the subtle implications in what they say and do. These complementary perspectives will help you develop a more comprehensive view of how your students' display their learning and communication processes. Even disagreements about what you are seeing will help you refine and extend your ability to assess your students' level of independence in the six processes.

Compare student profiles to help you plan common approaches to promote their growth towards greater independence.

You might also collaborate by sharing the profiles you have created of the students' learning and communication processes. If you find that your profiles of individual students are similar, you may be able to plan a common approach to instructional strategies and learning activities in each of your classes that will help the student develop greater independence in the processes. If you find that your profiles are different in some respects, it would be worthwhile to examine the contexts in which students seem to be more able to demonstrate independence in learning and communication processes. You can learn from one another how to create learning situations that enable students to display independence more consistently in all their classes.

If students perceive that their teachers are working together to help them improve their skills, they may be more motivated to learn and better able to transfer skills from one subject area to another, and then from your classes to other learning situations outside of school. The might also be better able to make connections among the things they are learning in different subject areas.

Communicating and Collaborating with Parents

ESLCP can help teachers be more accountable for students' learning

The current demand for accountability in education is impressing upon us the need to be more specific in reporting students' progress to parents, more precise in setting goals to improve students' learning, and more willing to working collaboratively with parents and students to achieve those goals. The reports of teachers who piloted *Evaluating Students' Learning and Communication Processes* indicated that this program can help teachers meet these demands.

Parents appreciate having comprehensive information about students' learning and communication processes

One teacher reported that parents appreciated having an opportunity to discuss the profiles she had created of her students' learning and communication processes. The profiles included specific examples showing how well the student had met the expectations for

independent performance of the key indicators of the processes. In one case, the parents said that they had never had such comprehensive information about their son as a learner. In another case, the parents were pleased that the teacher had been able to explain the source of their daughter's difficulty in school for many years. They were grateful to have the language that would enable them to explain the problem, and how to overcome it, to their daughter's other teachers.

Profiles of students' learning and communication processes, and their goals for improvement, promote a collaborative approach between teachers and parents to help students achieve their goals

Teachers found that by referring to the learning and communication processes, they could better explain their students' achievement and how it could be improved. One teacher put it this way:

> I finally had something I could bring to the table that could be used to show progress to a parent and identify specific areas where their son or daughter could improve. My profiles and the students' profiles of their learning and communication processes, combined with a list of strategies and assignments designed to help the student become more independent, enabled me to offer some very specific feedback to parents. I could show the parents that the student and I were working together to achieve a common goal.

In a workshop activity, the teacher demonstrated how teacher and student profiles can influence the tone of a discussion between parents and teacher about a students' progress. First, he asked the participants to role play a parent-teacher interview, using only a list of the student's marks as a point of reference for the discussion. Then he distributed the two profiles of the student's learning and communication processes—his and the student's, the latter based on self-evaluation, and asked the participants to repeat the parent-teacher interview, using this additional information.

The result was two very different parent-teacher interviews. In the first situation, based on marks only, the participants tried to establish blame for the student's poor achievement on some assignments. In the second situation, where the marks were

supplemented with profiles of the student's learning and communication processes, along with the student's goals for improvement, the discussion focused on how the teacher and the parents could support the student in achieving her goals.

Parents can help promote students' independence in learning and communication processes

Parents can readily understand the processes because they are also important to human learning outside of school, not just in school. Therefore, parents can play a key role in helping students to become more independent in the processes. They can do this by noticing and praising students' attempts to practice independence in the processes, not just in the work they are doing in school, but also in their language and actions at home and in the community.

Designing Your Own Diagnostic Teaching Units

In this final section, we will offer some suggestions to help you plan instruction that will incorporate diagnostic evaluation of students' learning and communication processes within the framework of regular classroom activities based on the Program of Studies. You will find these suggestions exemplified in Handbooks 2, 3, and 4 (Diagnostic Teaching Units in Language Arts, Social Studies, and Science respectively). The Instructional Strategies and Learning Activities described in this handbook on pages 104 to 117 may also help you select approaches and activities that will engage students in the six processes and provide opportunities for you to observe and evaluate their levels of independence.

The Diagnostic Teaching Units show how to design learning activities that enable students to use the six learning and communication processes to meet objectives for their learning in the Program of Studies

If you examine the Diagnostic Teaching Units in Handbooks 2, 3, and 4, you will find that the objectives are drawn from the Program of Studies. this was the starting point for teachers who planned the units. To meet these objectives, the teachers designed learning activities that would enable students to use the six learning and communication processes of this program to gradually extend and refine their understanding of the subject

matter, concepts, and their use of language and other forms of representation to demonstrate their understanding.

Lessons are designed to engage students gradually and progressively in all the processes, moving through them in a recursive fashion

All of the processes are not necessarily emphasized in every lesson, especially at the beginning of the unit. If you look at the processes emphasized for the lessons in the unit plan of each Diagnostic Teaching Unit, you will see that the first few lessons are designed to give students much opportunity to explore new ideas and language, and to narrate experiences, both in school and outside of school, that are relevant to the new experiences being presented in the classroom. (The processes emphasized in each lesson are indicated by a bold-faced "x" in the first column of the unit plan. Of course, it is neither possible nor desirable to exclude any of the processes, and where pilot testing indicated that other processes would also occur, these are indicated by the check mark.)

The subsequent lessons of the Diagnostic Teaching Unit provide learning activities that encourage students to engage in the other processes of ESLCP, moving them gradually towards greater independence and sophisticated abstracting and monitoring. The movement through the processes is interactive and recursive rather than linear, more like a spiral than an arrow.

Development through the processes can be assisted in a number of ways

The development through the processes can be facilitated in a number of ways, illustrated in the design of the learning activities for the lessons of the Diagnostic Teaching Units. For example, the learning activities integrate the language strands (reading, writing, speaking, listening, and viewing) so that they reinforce one another. Students have opportunities to use language and other forms of representation (drawings, models, etc.) for a variety of realistic purposes, moving gradually from exploratory, personal uses towards more formal communication with a variety of public audiences. They are involved in prewriting and prereading activities, small group learning situations, role-playing, and journal

writing, as well as formal oral and written presentations of their learning. There are opportunities for students to engage in peer editing and to get response to their work-in-progress. Opportunities for collaborative learning precede independent performance.

In addition, students are frequently invited to form personal intentions within the scope of the teachers' objectives, and to make choices related to such things as the resources and strategies to be used, and the role, audience, purpose, and format of their written work. They are also encouraged to participate in the development of criteria for evaluating their work.

Opportunities are built into the learning activities to gather information about students' learning and communication processes, and to involve them in self-evaluation and goal-setting

Because the learning activities of the lessons are designed to provide opportunities for students to engage in and develop independence in their use of the six processes, there are many situations where the teacher can observe and evaluate their learning and communication processes directly or gather data through the use of audio tapes, videotapes, written work, and other forms of representation for later examination. Students can use the same data as a basis for self-evaluation and peer evaluation of their learning and communication processes. When students are actively involved in meaningful work, time for teacher-student conference can be built in so that teacher and student ean compare profiles of the student's independence in the processes and plan together the action they will take to ensure the student's further growth.

Planning for continuity in the development of students' learning and communication processes can help them meet the challenge of lifelong learning

Subsequent units of work, planned in a similar way to integrate evaluation of students' learning and communication processes within the framework of learning activities that meet the objectives of the Program of Studies, will help to promote continuity in students' progress towards independence in the processes. If teachers and parents collaborate in this endeavour, they can help students become fully independent learners and communicators who can meet the challenge

of lifelong learning into the next century, whatever it holds in store for them.

Appendices

Appendix 1: Evaluating Students' Learning and Communication Processes and Other Models of Learning

1. Britton's Model of Language and Learning
2. Rosenblatt's Theory of Response to Literature
3. The Learning Cycle in Science
4. Social Studies Inquiry Strategies—Problem Solving
5. Social Studies Inquiry Strategies—Decision Making

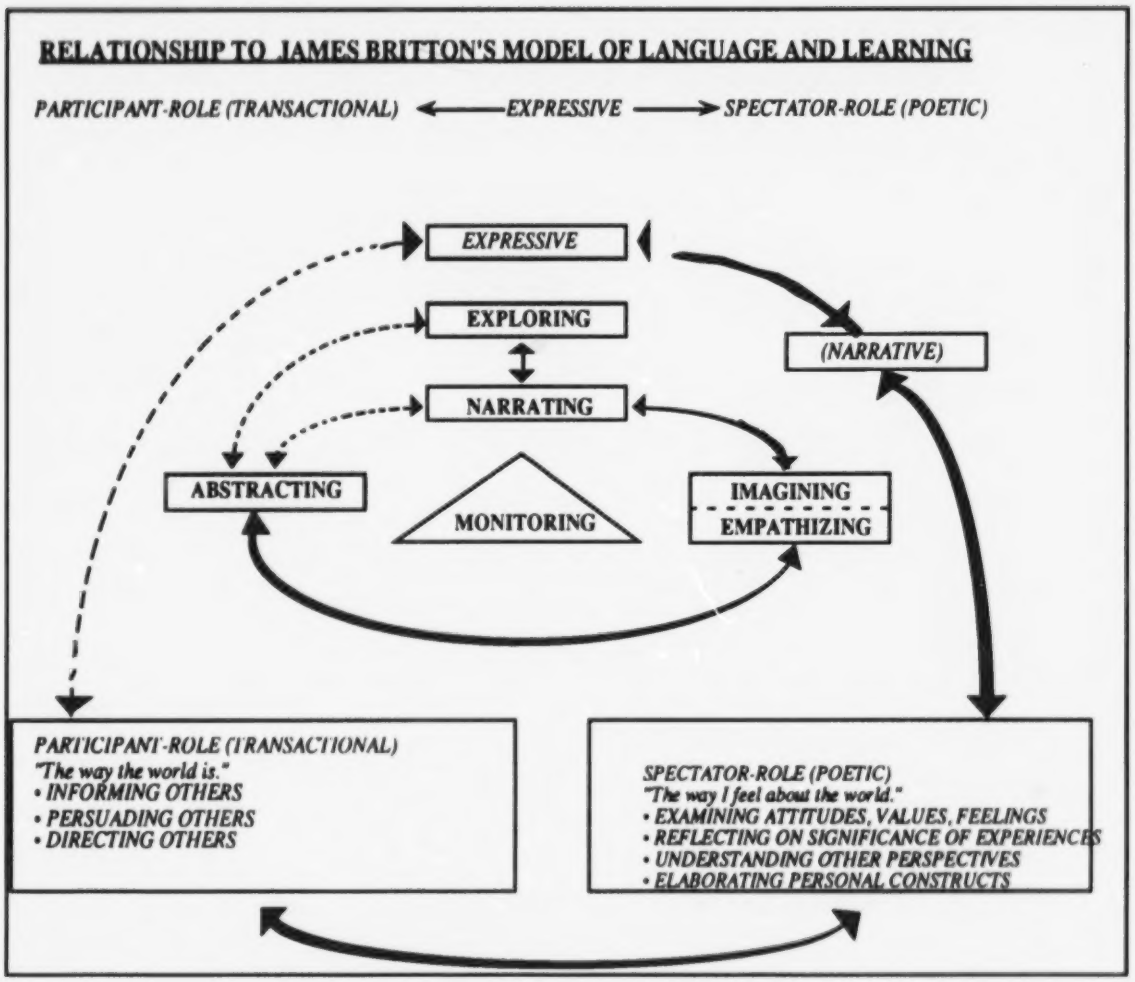
This appendix explains the relationships between the model of six processes essential to learning and communication underlying *Evaluating Students' Learning and Communication Processes* and other models of learning and language development that may be more familiar to teachers of language arts, science, and social studies. We show the relationships through a series of diagrams in which these other models are wrapped around the model that is the basis of *Evaluating Students' Learning and Communication Processes.*

The connections we have made between the models are the outcome of discussions with the teachers on our development committees in the three subject areas and with other educators who have become interested in our program. We describe the links that exist between related conceptions of learning and language development across the curriculum. We hope these descriptions will stimulate further thought and exchanges among teachers in all subject areas.

Britton's Model of Language and Learning

Our first diagram depicts the relationship of our model to Britton's (1970) model of language and learning. The three language modes in Britton's model (expressive, transactional, and poetic) are described in the *Junior High School Language Arts Curriculum Guide* (Alberta Education, 1987:36; 38) and in the *Senior High School Language Arts Curriculum Guide* (Alberta Education, 1982:36-38). While these documents apply Britton's model primarily to written language, the model is also applicable to the other language strands and to language and learning across the curriculum.

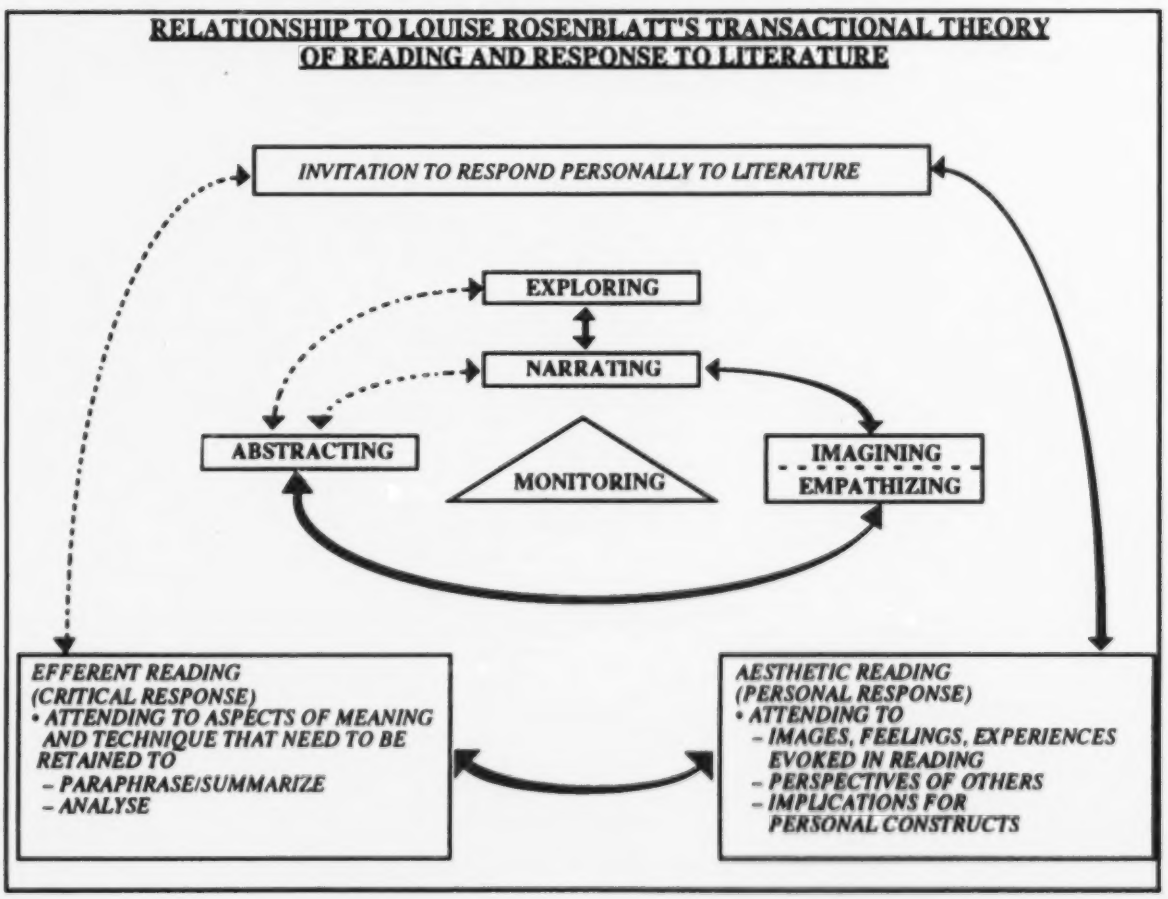
We can see more clearly the application of Britton's model to language and learning in all subject areas, and its relationship to the *Evaluating Students' Learning and Communication Processes* model, if we shift our focus from the **modes** ("poetic" and "transactional") to the **functions** of the corresponding **roles** ("spectator" and "participant"). We also need to alter the polarized appearance, in Britton's original model, of language development in these two roles to take account of subsequent research based on Britton's work, which has demonstrated the important function of narrative language and the relationship between spectator and participant roles in students' learning and language development across the curriculum (Montgomery, 1989). The diagram below shows how **narrative** and **spectator-role** language provide the informing contexts for thought and language in the **participant-role.**



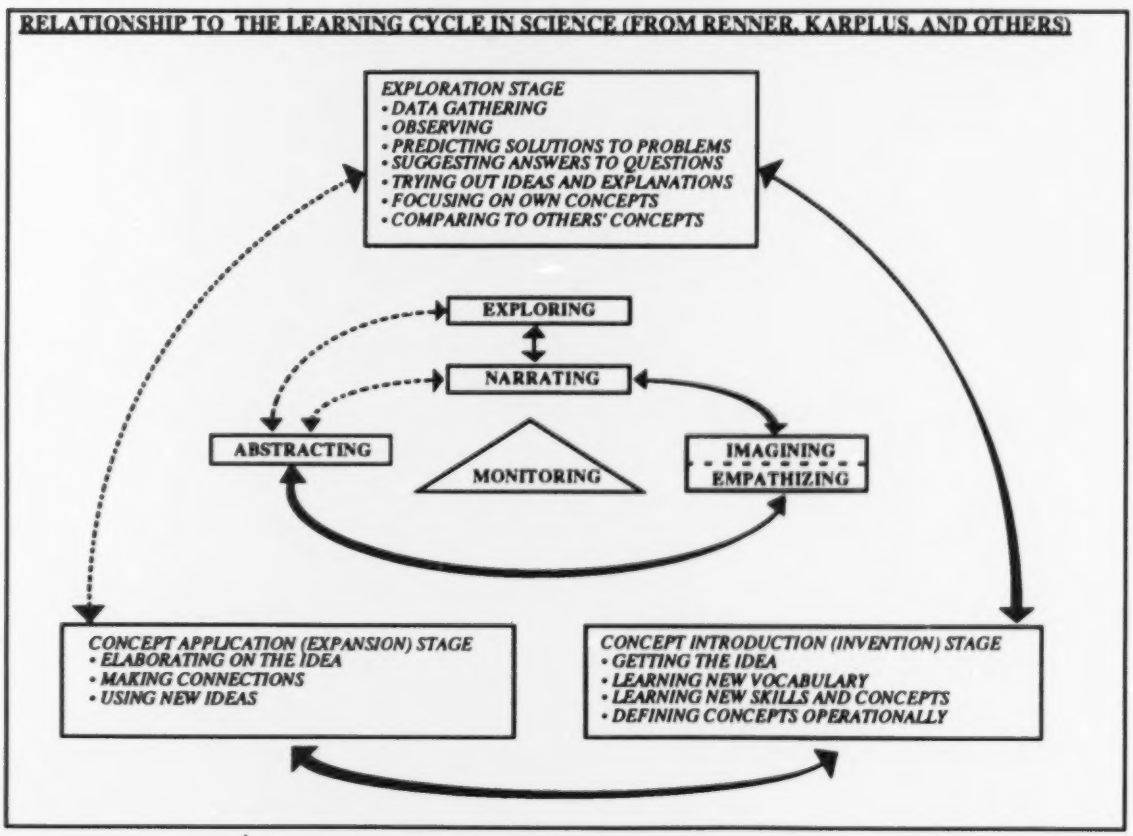
Students in any subject area can be drawn from narrative into **spectator-role** thought and language in a variety of ways — through talk, journal writing, and role-playing, for example, all of which have the potential to call forth students' capacities in **imagining** and **empathizing**. When students are encouraged to use language in these ways to reflect upon the significance of what they are learning to their lives outside school and to their perception of the world, the outcome will be an enhanced ability to use language for **abstracting** in the **participant-role.**

Rosenblatt's Theory of Response to Literature

Our second diagram displays the connections between our model and the relationships Rosenblatt (1978) describes between aesthetic (personal) and efferent (critical) reading and response to literature. The distinctions, and the relationships, between these two ways of responding to literature are described in the *Junior High School Language Arts Curriculum Guide* (Alberta Education, 1987:42-44) and in the *Senior High School Language Arts Curriculum Guide* (Alberta Education, 1982:43-44; 48-49). We have also drawn upon Rosenblatt's discussion with Wilson (1981), where she argues the case for the primacy of **aesthetic (personal) response** to literature, involving the students' capacities for **imagining** and **empathizing**. Through the sharing and examination of aesthetic (personal) responses to a work, students extend and refine their ability to engage in the kind of higher-level **abstracting** necessary to an informed **efferent (critical) response** to literature. The diagram below depicts these relationships.

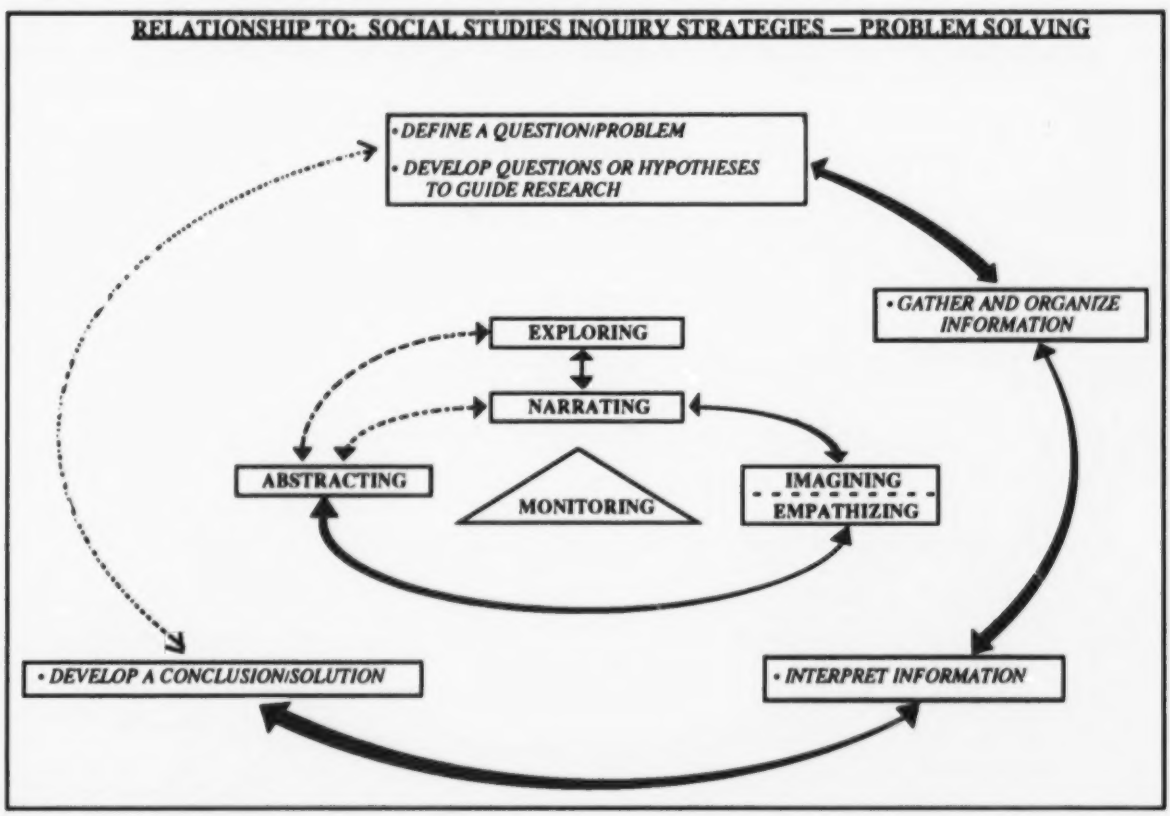


Our third diagram links the *Evaluating Students' Learning and Communication Processes* model with the learning cycle in science proposed by Renner, Karplus, and others. We have drawn upon descriptions of the three stages in this learning cycle as provided by Kydd, Jones, and MacAlister (1988:4) and by Dueck, Turner, and Doerksen (1989:1). Their descriptions indicate that learning occurs as students move from the **exploration stage (exploring** personal and shared concepts) to the **concept introduction (inventing) stage (imagining** other possibilities and **empathizing** with the perspectives and language of scientists). These stages prepare the ground for the **concept application (expansion) stage,** where students extend their **abstracting** abilities, applying new ideas and language to a variety of novel situations. The diagram below illustrates common elements in the two models.



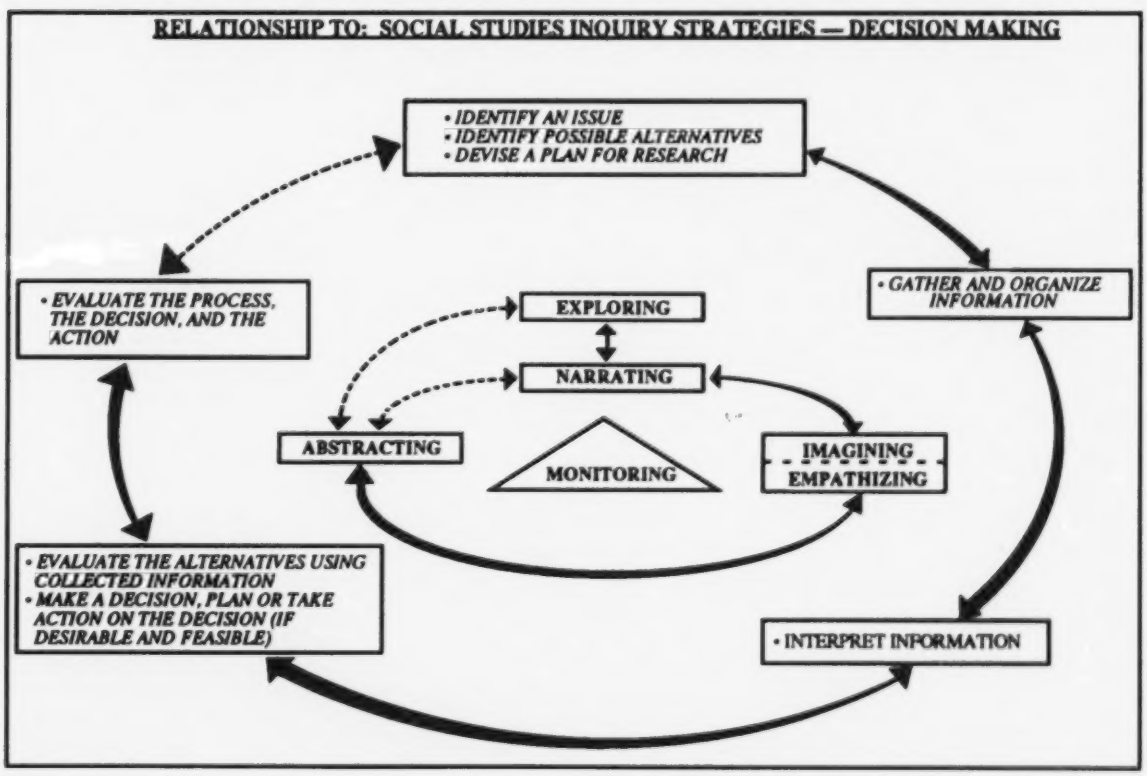
Social Studies Inquiry Strategies — Problem Solving

Our fourth diagram presents the connections between the *Evaluating Students' Learning and Communication Processes* model and the problem-solving model found in the *Interim Program of Studies for Social Studies 10 and Social Studies 13* (Alberta Education, 1988:3) and the *Junior High Social Studies Teacher Resource Manual* (Alberta Education, 1989:3; 13-17). Students are engaged in **exploring** (connecting new with prior knowledge, experience, and values; and taking calculated risks) when they *define a question or problem* and *develop questions or hypotheses to guide research.* They continue to explore, to search for additional information, and also to engage in **narrating**, when they *gather and organize information.* Students use the processes of **imagining** and **empathizing** to *interpret the information* that they have gathered in order to make this information personally meaningful. By the time students have *developed a conclusion*, answered their original question, or *proposed a solution* to their initial problem, they have become engaged in the process of **abstracting**. Their answers and solutions may suggest additional questions or problems to be explored. The diagram that follows depicts the relationship between the two models.



Our final diagram depicts the relationship between *Evaluating Students' Learning and Communication Processes* model and the decision-making model found in the *Interim Program of Studies for Social Studies 10 and Social Studies 13* (Alberta Education, 1988:3) and the *Junior High Social Studies Teacher Resource Manual* (Alberta Education, 1989:3; 13-17). The relationship between the social studies decision-making model and the model of learning underpinning the Diagnostic Communication Processes Program is very similar to the relationship, described above, between our model and the social studies problem-solving model.

Students are engaged in **exploring** (connecting new with prior knowledge, experience, and values; and taking calculated risks) when they *identify an issue and possible alternatives* and when they *devise a plan for research.* They continue to explore, to search for additional information, and also to engage in **narrating**, when they *gather and organize information.* Students use the processes of **imagining** and **empathizing** to *interpret the information* that they have gathered so that this information can become personally meaningful. By the time students have *evaluated the alternatives, made a decision or taken action,* they have become engaged in the process of **abstracting**. They elaborate and expand upon this process and extend their abstractions when they *evaluate the process, the decision, and the action.* The diagram below illustrates common elements in the two models.


RELATIONSHIP TO: SOCIAL STUDIES INQUIRY STRATEGIES — DECISION MAKING
• IDENTIFY AN ISSUE
• IDENTIFY POSSIBLE ALTERNATIVES
• DEVISE A PLAN FOR RESEARCH
• GATHER AND ORGANIZE INFORMATION
• EVALUATE THE PROCESS, THE DECISION, AND THE ACTION
EXPLORING
NARRATING
ABSTRACTING
MONITORING
IMAGINING
EMPATHIZING
• EVALUATE THE ALTERNATIVES USING COLLECTED INFORMATION
• MAKE A DECISION, PLAN OR TAKE ACTION ON THE DECISION (IF DESIRABLE AND FEASIBLE)
• INTERPRET INFORMATION

Appendix 2: Unit and Lesson Planning Sheets

UNIT PLAN

THEME _____

FOCUS _____

PROCESSES							DIAGNOSTIC EVALUATION PROCEDURES	ACTIVITIES
EXPLORING	NARRATING	IMAGINING	EMPATHIZING	ABSTRACTING	MONITORING			
Lesson								
✗ indicates a process emphasized in the lesson ✓ indicates a process used in the lesson								

ONGOING ACTIVITIES

EVALUATING STUDENTS' LEARNING AND COMMUNICATION PROCESSES

Grade _____ **Course** _____

CLASSROOM ORGANIZATION				STRANDS				PROGRAM OBJECTIVES	MATERIALS
INDIVIDUAL	PAIR	SMALL GROUP	WHOLE CLASS	READING	WRITING	ORAL COMM	VIEWING		

LESSON PLAN

Theme _____ **Grade** _____ **Course** _____

OBJECTIVES	**PROCEDURES**		**MATERIALS**
	STUDENT ACTIVITY / TEACHER ACTIVITY	SUPPLEMENTARY OR ALTERNATIVE PROCEDURES	

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